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LOUISIANA

STATEWIDE WILDLIFE INVESTIGATIONS

ANNUAL PROGRESS REPORT,
W-29-16 and FW-2-10
Pittman-Robertson Projects

1968-69

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
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STATE OF LOUISIANA

LOUISIANA WILD LIFE AND FISHERIES COMMISSION

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STATE: Louisiana

PROJECT: W-29-16

PERIOD: July 1, 1968 - June 30, 1969

ANNUAL PROGRESS REPORT

Supervisors:	Clark M. Hoffpauer, Director Louisiana Wild Life and Fisheries Commission
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	Jack O. Collins Rabbit Study Leader
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JOB PROGRESS REPORT

State: Louisiana

Cooperators: J. W. Farrar, Study Leader and L. D. Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-2 Job Title: General Condition of Deer Herds

Period Covered: July 1, 1968 to June 30, 1969

Summary: Deer checking stations were operated on nineteen (19) Louisiana Wild Life Management Areas during the 1968 managed hunts. Data collected at these checking stations included sex, ages, weights, antler developments fawn-adult ratios and hunter success ratios. All such physical data has been tabulated, analyzed and compared to similar data obtained from previous managed hunts. During the 1968 managed hunts 41,854 hunters harvested 2,609 deer from Louisiana Wild Life Management Areas on which check stations were operated. In addition an unknown number of deer were harvested on some of these areas during extra bucks only seasons when check stations were not operated. A brief aging school was held for all technical personnel prior to opening of deer season.

Background: In order to more efficiently manage deer within the state it is essential for management data to be collected that includes information on the physical condition of deer within the major herds. The most reliable data to be collected is that which is obtained from deer checking stations on game management areas throughout the state. This study is designed to provide for an annual survey of the physical condition of deer harvested from game management areas in Louisiana. Information obtained will be tabulated and compared to data previously taken from the respective area to determine what changes have occurred among the deer of that particular herd. This information allows technical personnel to maintain close and continuous surveilance of the physical condition of deer from each area. The general condition study, therefore, serves as the most reliable criterion by which we can measure the efficiency and over all success of our deer management programs. Knowledge gained through this study will become an integral part of a sound scientific management program which will ultimately result in more deer and deer of higher quality for the sportsman. In addition range depletion and damage to forest resources will be minimized, thereby encouraging continued participation by major landowners in Louisiana's game management area program.

Objectives: The objective of this study is to analyze the physical data from deer killed on the wildlife management areas within the state, and to correlate the physical conditions to age classes, population densities, and fawn-adult ratios.

Procedures: Deer checking stations were operated on all wildlife management areas having deer seasons except Caney and Cities Service Wild Life Management Areas. Ages, weights, sex, and antler development were recorded for as many deer as possible from each of the wildlife management areas. Udders of females were checked for evidence of lactation. Simultaneous openings of all wildlife management areas having deer seasons created a shortage of technical personnel and consequently, some non-technical people were used in the operation of deer checking stations, thereby making it impossible to secure valid information from all of the deer killed on the wildlife management areas. In general, biologists were assigned only to checking stations where a heavy deer kill was anticipated. The only data collected by non-technical personnel that is used in this report is the number of deer and sex of deer coming through their check stations.

All weight data is broken into three categories: Live weight, empty weight, and field dressed weight. Live weight is defined as the weight of the complete intact deer. Empty weight is considered to be the weight of the complete animal with all viscera removed. A deer with only the stomach and intestines removed was considered field dressed. All weight data is broken down by sex and age. The mean weight for each category in each age class is calculated. Mean weights were then converted to live weights by the application of generally accepted conversion factors. Mean field dressed weights were converted to live weights by multiplying by the conversion factor of 1.25. Mean empty weights were multiplied by the factor 1.33 to obtain computed live weights. Once all three weight categories were placed in common terms, the average computed live weight was calculated for each age class. By presenting weight data in this manner, comparisons can be made between the various management units and data categories. This method of treatment also strengthens the size of the sample.

Deer ages were grouped into three categories for the purpose of this report. In processing data from areas where either sex hunts were held. ages were recorded as either 6 months, 1-1/2 years, or 2-1/2 years. The first two of these categories are exact ages; the latter is a composite group containing all deer of age 2-1/2 years or older. The purpose of this type of age grouping is to increase the accuracy of our age-weight correlations. Since it is felt that many of the errors made in aging deer are made in the age group of 2-1/2 years and older deer, the consolidation of the age classes past the 1-1/2 year age group would tend to minimize the effect brought about by aging errors. All previous data has been converted to this new system of grouping for the purpose of comparison.

A deer aging school was held prior to the managed hunts. This afforded technical personnel an opportunity to familiarize themselves with aging criteria.

In cases where bucks-only hunts were held, only the 1-1/2 year and 2-1/2 year age classes were used due to the fact that 6 month old male deer did not have antlers that met the legal minimum of three inches.

All Louisiana Wildlife Management Areas having deer seasons were opened on November 23, 1968, for the managed deer hunts with the exception of Zemurray Park Wild Life Management Area, which opened for a special hunt on December 9, 10, and 11. Hunters on this area were limited to 200 per day. These hunters were selected by public drawing in advance of this special hunt. Those hunters selected received non-transferable permits good for one day of "any deer" (either sex) hunting. On other wildlife management areas, hunters were required to surrender their basic hunting license daily to permit stations in exchange for a daily permit. Only still hunting was permitted. All wildlife management areas having deer seasons had either-sex deer seasons except Caney, Concordia, Cities Service, Red River and Saline Wildlife Management Areas.

In most cases, the allotted open season for wildlife management areas was five days scheduled in the following manner: November 23-24, either-sex hunting for a total of 2 days and November 29-December 1 bucks only hunting for a total of 3 days. Georgia-Pacific, Alexander Forest, Caldwell, Evangeline, and West Bay Wildlife Management Areas were open for either-sex deer hunting the first day and the four additional days were for bucks-only. Fort Polk and Lutcher Moore Wildlife Management Areas each had two days of either-sex deer hunting, whereas Bodcau had only one. Later bucks-only hunting was allowed on these areas, concurrent with the open season in adjacent areas. Russell Sage Wildlife Management Area had two days of either-sex deer hunting plus 3 days for bucks only, as outlined in the general wildlife management area schedule, in addition to later bucks-only hunting concurrent with the adjacent outside area. Caney and Cities Service Wildlife Management Areas were opened concurrently with the seasons in adjacent areas. Concordia, Red River and Saline Wildlife Management Areas were open for 5 days in accordance with the general W. M. A. schedule outlined above but for bucks only, plus later bucks only hunting concurrent with the open season in adjacent areas.

Checking stations were operated for five days on most of the wildlife management areas. Fort Polk and Zemurray Park Wildlife Management Areas operated check stations for two and three days respectively. Bodcau, Caney, Spring Bayou and Cities Service Wildlife Management Areas were open to hunting with use of season length permits, and on these areas deer checking stations were not operated with the exception of the one either-sex day on Bodcau. Fort Polk Wildlife Management Area was hunted with season permits following the two day either-sex deer season. Russell Sage, Concordia, Saline, and Red River Wildlife Management Areas were hunted with season permits following the first five days of deer season, and checking stations were operated only for those five days.

Findings: All data collected on managed deer hunts held during the 1968 season has been processed and is presented in tabular form. The following tables give a summary of the results of the managed hunts on some of the game management areas.

Recommendations: Deer check stations provide the most important source of accurate physical data concerning the white-tailed deer. Utilization of all available information relating to our deer herds is the only means of achieving efficient management of this valuable game animal. Refinement of techniques for gathering physical data should continue to be a major concern. We should continue to stress the extreme importance of collecting accurate data and strive to increase the amount of reliable physical data collected from our deer herds. As in previous years, technicians should be required to attend an annual pre-season deer aging school. This informal school will also provide technicians with the opportunity to familiarize themselves with data collecting techniques and associated records to be kept in conjunction with the managed deer hunts.

Prepared by: J. W. Farrar
J. W. Farrar
Deer Study Leader

Table 1

COMPUTED LIVE WEIGHTS BY AGE CLASS OF DEER KILLED ON SOME LOUISIANA WILDLIFE MANAGEMENT AREAS DURING THE 1967 AND 1968 MANAGED HUNTS

Alexander State Forest

Sex	Year	AGE					
		6 months		1 1/2 year		2 1/2 years & older	
Male	1967	(9)	57.8	(9)	98.8	(8)	118.3
Male	1968	(4)	60.6	(7)	98.0	(3)	142.4
Female . . .	1967	(4)	57.5	-	-	(6)	87.9
Female . . .	1968	(1)	55.0	(2)	77.7	(8)	92.7
				Caldwell W.M.A.			
Male	1967	-	-	(46)	116.5	(13)	141.3
Male	1968	(37)	67.8	(61)	117.3	(12)	158.5
Female . . .	1967	-	-	(Bucks only)		-	-
Female . . .	1968	(33)	62.4	(35)	97.3	(110)	113.9
				Catahoula W.M.A.			
Male	1967	(33)	56.1	(49)	91.3	(33)	126.9
Male	1968	(30)	58.1	(48)	100.7	(37)	141.3
Female . . .	1967	(23)	51.9	(47)	75.5	(50)	87.5
Female . . .	1968	(23)	53.4	(28)	80.3	(51)	91.0

NOTE: Numbers in parenthesis denotes size of sample.

Table 1 (Continued)

Fort Polk W. M. A.

Sex	Year	AGE					
		6 months		1 1/2 year		2 1/2 years & older	
Male	1967	(47)	54.3	(42)	109.5	(47)	122.1
Male	1968	(26)	56.5	(25)	91.5	(25)	125.7
Female	1967	(48)	47.9	(35)	80.2	(63)	87.8
Female	1968	(27)	56.4	(18)	75.2	(35)	90.0

Georgia Pacific W. M. A.

Male	1967	(117)	61.8	(105)	99.2	(41)	125.7
Male	1968	(58)	60.8	(78)	103.1	(42)	140.7
Female	1967	(112)	55.7	(79)	86.4	(219)	97.3
Female	1968	(48)	54.8	(49)	88.6	(116)	99.5

Jackson-Bienville W. M. A.

Male	1967	(23)	56.9	(46)	114.2	(23)	150.2
Male	1968	(25)	55.1	(22)	115.2	(11)	176.7
Female	1967	(21)	48.2	(15)	96.1	(31)	102.7
Female	1968	(19)	51.5	(18)	97.3	(37)	104.5

Red Dirt W. M. A.

Male	1967	(31)	57.5	(40)	120.1	(46)	127.9
Male	1968	(32)	58.8	(27)	100.5	(37)	132.1
Female	1967	(36)	53.3	(21)	80.0	(58)	91.6
Female	1968	(40)	53.2	(16)	84.6	(38)	96.2

Russell Sage W. M. A.

Male	1967	(12)	67.3	(20)	141.0	(14)	182.5
Male	1968	(7)	69.1	(15)	148.9	(4)	194.8
Female	1967	(18)	59.1	(18)	110.5	(23)	119.1
Female	1968	(17)	64.4	(12)	105.3	(12)	121.8

Table 1 (Continued)

Saline W. M. A.

Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male	1967	-	-	(20)	141.7	(26)	213.2
Male	1968	-	-	(29)	145.9	(50)	233.7
Female . . .	1967	-	-	(Bucks only)		-	-
Female . . .	1968	-	-	(Bucks only)		-	-

Thistlethwaite W. M. A.

Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male	1967	(3)	79.0	(2)	168.4	(7)	217.2
Male	1968	(7)	54.9	(8)	140.3	(11)	229.9
Female . . .	1967	(1)	68.8	(1)	115.0	(4)	125.3
Female . . .	1968	(5)	61.0	(3)	129.6	(11)	123.2

Union W. M. A.

Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male	1967	(7)	60.0	(16)	112.5	(12)	163.2
Male	1968	(10)	66.9	(13)	115.1	(12)	150.3
Female . . .	1967	(3)	64.9	(6)	93.0	(6)	124.8
Female . . .	1968	(8)	62.5	(8)	85.4	(6)	102.5

West Bay W. M. A.

Sex	Year	6 months		1 1/2 year		2 1/2 years & older	
Male	1967	(95)	52.5	(113)	80.9	(124)	109.7
Male	1968	(97)	52.9	(86)	84.7	(70)	116.5
Female . . .	1967	(81)	46.2	(86)	73.7	(133)	82.8
Female . . .	1968	(74)	48.6	(59)	77.1	(115)	81.3

NOTE: Age-weight correlations were made only on those areas where sufficient data were collected.

Table 2

HUNTER SUCCESS RATIOS FOR SOME LOUISIANA WILDLIFE MANAGEMENT AREAS DURING THE 1967 AND 1968 DEER HUNTING SEASONS

	1967			1968		
Game Management Area	No. of Hunter Efforts	No. of Deer Killed	Hunter Success Ratio	No. of Hunter Efforts	No. of Deer Killed	Hunter Success Ratio
Alexander Forest	1186	37	1/32	708	25	1/28
Caldwell	1561	61	1/26	2400	354	1/7
Catahoula	3660	198	1/19	4082	219	1/19
1/*Concordia	73	1	1/73	103	1	1/103
Evangeline	851	22	1/39	526	9	1/58
1/**Fort Polk	4467	284	1/16	2582	157	1/16
Georgia-Pacific	6787	847	1/8	6251	608	1/10
Jackson-Bienville	2732	160	1/17	1751	136	1/13
Lutcher-Moore	467	21	1/22	827	28	1/30
Red Dirt	4173	233	1/18	3845	192	1/20
1/*Red River	(No Check Stations Operated)			645	16	1/40
1/Russell Sage	3234	106	1/31	1916	71	1/27
Sabine	401	13	1/31	439	16	1/27
1/*Saline	1245	50	1/25	2870	90	1/32
Thistlethwaite	848	18	1/47	1598	47	1/34
Union	959	50	1/19	925	57	1/16
West Bay	10130	642	1/16	9300	515	1/18
Zemurray	397	24	1/16.5	397	24	1/16
	43131	2767		41165	2565	

* "Bucks Only" hunting.

** Manner in which hunts were conducted does not reflect on accurate measure of hunter success.

1/ Additional bucks only hunting allowed during other portions of the regular deer season.

NOTE: All hunting is "any deer" hunting unless otherwise indicated.

Table 3

DEER HERD REPRODUCTION RATIOS SHOWING NUMBER OF FAWMS PER 100 DOES OF AGE 2 1/2 YEARS AND OLDER

Wildlife Management Areas		Adult Does	Fawns	Ratios
Caldwell	(Bucks only)			
	1967	-	-	-
	1968	110	70	64/100
Catahoula W.M.A.				
	1967	50	56	112/100
	1968	51	53	104/100
Fort Polk W.M.A.				
	1967	63	95	150/100
	1968	35	53	151/100
Georgia-Pacific W.M.A.				
	1967	219	229	105/100
	1968	116	106	109/100
Jackson-Bienville W.M.A.				
	1967	31	44	141/100
	1968	37	44	119/100
Red Dirt W.M.A.				
	1967	58	67	115/100
	1968	38	72	189/100
Russell Sage W.M.A.				
	1967	23	30	130/100
	1968	12	24	200/100
West Bay W.M.A.				
	1967	133	176	131/100
	1968	115	171	149/100

Table 4

Percentage of 1 1/2 year old bucks having only two antler points (spikes), as found on some Louisiana game management areas during the 1968 managed hunts.

Area	Number of 1 1/2 Year Old Antlered Males Checked	Spike (2 point) bucks with legal size antlers (3 inches or more in length)		Spike (2 point) with illegal size antlers (less than 3 inches in length)	
		Number	Percent	Number	Percent
Alexander Forest W.M.A.	7	2	28.6	0	0
Caldwell W.M.A.	61	30	49.2	5	8.2
Catahoula W.M.A.	48	11	22.9	2	4.2
Fort Polk W.M.A.	25	13	52.0	0	0
Georgia Pacific W.M.A.	78	38	48.7	2	2.6
Jackson Bienville W.M.A.	22	11	50.0	6	27.3
Red Dirt W.M.A.	27	13	48.0	1	3.7
Russell Sage W.M.A.	15	3	20.0	1	6.7
Saline W.M.A.	29	4	13.8	0	0
Thistlethwaite W.M.A.	8	0	0	0	0
Union W.M.A.	13	8	61.5	0	0
West Bay W.M.A.	83	55	62.5	10	12.0

Table 5

Incidence of lactation among 1 1/2 year old female white-tailed deer as observed on some Louisiana game management areas during the 1968 hunting season.

Area	Number of Deer Checked	Number of Deer Lactating	Percent Lactating
Catahoula W.M.A.	28	4	14.3
Caldwell W.M.A.	30	3	10.0
Fort Polk W.M.A.	12	3	25.0
Georgia Pacific W.M.A.	38	5	13.2
Jackson-Bienville W.M.A.	18	1	6.0
Red Dirt W.M.A.	16	3	19.0
Russell Sage W.M.A.	9	1	11.1
West Bay W.M.A.	41	4	9.8

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis Brunett-Study Leader; Larry Soileau-Project Leader

Project No. W-29-16 Study Title: Deer Investigations

Job No. I-6 Job Title: Annual Inventory of Deer

Period Covered: July 1, 1968 through June 30, 1969

Summary: Deer range surveys were made in some areas of the State. The findings of these were made available to the Louisiana Wildlife and Fisheries Commission to be used in setting deer hunting regulations for the 1969-70 season.

Background: The deer herds in the state have rapidly increased and;therefore, it is important to inspect and keep records of information on the ranges the herds occupy. This information will indicate condition of the range and aid in setting deer hunting seasons for the area.

Objectives: The overall objective of this study is to gather deer management data from the deer ranges throughout the State. Specific objectives are: (1) to learn as much as possible regarding the various deer ranges of the State and the herds that occupy them; (2) to recommend management measures for all deer ranges in the State, and (3) to compile a record of deer management regulations for the various ranges during the recent history of management.

Procedures: Each district supervisor divided his district into deer range survey areas. Each area was to be treated as the range of one deer herd and was to be surveyed and reported on separately. These areas were set up using roads or streams as well defined boundaries.

The techniques used were taken from a guide that was previously prepared for making the surveys and for preparing a survey report. The techniques are as described below.

Each district supervisor is responsible for a survey of all the deer ranges in his district annually. Assistance from other district personnel and research personnel was to be provided. Further assistance from employees of the Fish and Game and Enforcement Divisions was to be solicited.

A survey party was to consist of one to several men, each familiar with the browse plants of the area.

A survey route was to be laid out along public roads or along water courses which were navigable. The party was to travel by vehicle or boat between inspection stops.

Inspection stops were to be located on a map of the area. At each stop the investigator was to walk perpendicular to the main line of travel keeping notes on occurance and use of browse, and deer sign such as tracks, droppings, rubs, and sign of dogs and cattle. The timber type and all other information believed to be relevant was to be recorded.

Local people were to be contacted as well as enforcement agents, Forestry Commission employees, and industrial foresters to obtain comments helpful to the survey.

The physical condition of the deer was to be obtained from data recorded during the previous season when such data is available.

A narrative report was to be prepared on each area surveyed. The report was to include a description of area, history of deer herd and hunting seasons, factors that affect hunting, condition of the range, condition of the herd (if determined), economic liability of deer in the area, recommendations for coming season, the chances of getting the herd managed along sound biological principles, and an estimate of needs to facilitate deer management in the area.

Findings: Deer range surveys were made in the Parishes of Assumption, Avoyelles, Bienville, Caddo, Caldwell, Claiborne, Concordia, East Baton Rouge, Franklin, Grant and Rapides, Iberville, Jefferson, Lafourche, LaSalle, Pointe Coupee, Red River, St. Bernard, St. Charles, St. James, St. John, St. Martin, St. Mary, Terrebonne, and Webster. A summary of a report of each area surveyed follows.

Avoyelles Parish:

This area is bottom land hardwood and a great portion floods each year.

The area has been heavily logged. The large number of cattle in this area are utilizing a tremendous amount of the available browse.

Poaching appears to be a factor that is holding the deer herd down.

Assumption Parish:

The timber in this area is primarily cypress and tupelo gum. Other species include blackgum, black willow, red bay, red maple, live oak, hackberry, sweetgum, yellow poplar and American elm. Understory species other than

young plants of the above included elderberry, blackberry, dewberry, greenbriar, rattan and trumpet vine.

Utilization of browse species was moderate. The deer herd in this area appears to be in good condition.

A deer die-off occurred in this area in the summer of 1968. A team of technicians from the Cooperative Wildlife Research Unit were called in to investigate. The results of this survey indicated there was no real serious die-off problem. This area was open to deer hunting during the 1968-69 season.

Bienville Parish:

The nearly 400,000 acres of forest lands of this parish is comprised of two principal timber types. Shortleaf-loblolly pine-hardwoods occupy about three fourths of the area while the remainder is in the longleaf pine type. The topography is characterized by rolling hills and meandering minor streams, usually with a strip of adjacent hardwoods. Most of the forested lands are open to public hunting.

The parish is well stocked with deer. The availability of browse is good, but there is evidence of both cattle and deer utilization. For the past several years deer have been browsing extensively on agricultural crops such as watermelons and sweet potatoes.

In addition to 34 days of bucks-only deer season during 1968-69 either sex deer were legal for two days in November of 1968. The estimated 1968-69 deer kill for Bienville Parish is 2,176 deer.

Caddo Parish:

Approximately 50 percent of this parish is in forest land. The remainder is in open pasture or row crop type of agriculture. The timber type is loblolly-shortleaf pine-hardwoods.

Browse plants were plentiful but usage was heavy. Some of this usage was by cattle. Fresh dog sign was also abundant. The herd appears to be in good physical condition. This area was open to deer hunting during the 1968-69 season.

Caldwell Parish:

That portion of Caldwell Parish surveyed is in the loblolly-shortleaf pine-hardwood timber type. This is some of the better deer range within the state. There is an abundance of browse and mast producing species. Browse utilization was moderate.

Claiborne Parish:

Approximately 80 percent of this parish is in forest land. The timber type is shortleaf-loblolly pine-hardwoods. Area is not up to carrying capacity. Those herds harvested during the past deer season were in good physical condition.

Concordia Parish:

The area surveyed in Concordia Parish was one club in the batture hardwood type. This range is recovering from cattle removal. The potential of the area is good. There is an abundance of deer browse species. There was plenty of deer sign and browse utilization was moderate.

East Baton Rouge Parish:

The area surveyed was in the north portion of the parish. There is an abundance of browse available. The deer herd in this area has dwindled to a few. This decline was attributed to harassment by dogs.

Franklin Parish:

Here the area surveyed was in the bottomland hardwood timber type. Examination of browse species showed evidence of high utilization. Preferred browse species showed a long history of over use.

In recent years, a decrease in body size and antler development has been noticed. This deer herd originated from native stock and is considered to be one of the highest deer populations in that part of the State. An either sex hunt has never been held in this area.

Grant and Rapides Parishes:

This survey was made in bottomland hardwoods located along Red River. Browse availability is fair. Browse utilization ranged from moderate to heavy. The deer herd is considered at carrying capacity. An either sex season is past due. This area is not open to public hunting.

Iberville Parish:

The timber type of this area is bottomland hardwoods which at one time flooded annually before construction of the east guide levee of the Atchafalaya floodway. Recent logging operations have allowed good browse species to thrive. The deer herd is growing. However, a heavy cattle population is reducing the available browse.

Jefferson Parish:

The timber type in the area surveyed is primarily cypress-tupelo. Other species included live oak, water oak, ash and maple.

Browse species were abundant especially on the ridges and canal spoil banks. Percent of browse utilized was not determined. Deer sign indicated a good herd in this area.

Lafourche Parish:

The primary timber type in this area is cypress-tupelo with some ash, black willow, red maple, hackberry, yellow poplar, live oak, and water oak. Standing water is over a large portion of this area. There is evidence of a high cattle population. The problem with this deer herd is cattle competition, harassment by dogs and poaching.

LaSalle Parish:

The portion of LaSalle Parish surveyed is composed primarily of pine plantations. This area was given a timber stand improvement treatment several years ago. There are no mast producing trees in the hills. The deer range is actually limited to the stream bottoms. The cattle and hog population is high. The cattle utilized heavily the available browse plants. An excessive amount of dog activity takes place in this area.

Pointe Coupee Parish:

The timber type of this parish is pure bottomland hardwood. This is a relatively large parish and the conditions within the wooded areas vary. The wooded areas are in hunting clubs.

Some of the club lands are overpopulated by deer and this plus cattle present are heavily utilizing the browse plants available. Other areas have a large deer herd but cattle are excluded and recent logging operations have caused these to develop into areas of lush undergrowth which provide palatable deer foods.

Some damage to soybean crops has occurred. This damage varies in degree of severity.

On all areas surveyed, an either sex hunting season was recommended for the 1969-70 season.

St. John Parish:

The timber types in this area ranged from cypress-tupelo gum in the lower areas to mixed hardwood on the higher ridges. Browse species availability ranged from fair to good on the higher ridges. In the lower areas they were scarce.

Factors affecting the deer in this area are poaching, harassment by dogs, and heavy hunting by six hunting clubs.

St. Martin Parish:

The timber type in this area is mixed bottomland hardwoods. Browse species availability ranged from fair to good on the ridges and canal spoil banks.

Tracks and other browse sign were numerous even though a deer die-off was reported in this area. This survey was made in conjunction with the investigation of that die-off.

St. Mary Parish:

The timber typesin this area were mixed, typical of that found on coastal chenieres. The species included live oak, water oak, cypress, tupelo gum, red bay and hackberry. The availability of browse species ranged from poor to good throughout the area. Poaching is one factor affecting this deer herd.

Terrebonne Parish:

The timber found in this area is cypress, bitter pecan, ash, hackberry, red maple and black willow. This area is composed of cane fields interspersed with small wooded areas. There is a wooded area in a band along Bayou St. Louis on the eastern portion of the parish.

The availablilty of browse species ranged from fair to good. The range appeared to be suitable to carry a higher population of deer.

Factors adversely affecting the deer are competition from cattle, harassment by dogs and poaching.

Webster Parish:

The topography of this parish is rolling hills interspersed with stream bottoms. The largest stream bottoms are those of Bayou Bodcau and Bayou Dorcheat.

The timber type is loblolly - shortleaf pine - hardwood. The timber of the stream bottoms is mixed hardwood.

The availability of deer browse species is good. Stock laws prohibit free ranging livestock in this parish. Deer are distributed over most of the available range and there is no indication of overbrowsing.

Factors adversely affecting the deer are running by dogs during the entire year and some poaching.

Recommendations: It is recommended that the inventory of the deer areas be continued. The district supervisors should try to get as many as possible of the deer ranges within their districts surveyed annually. The administrators should encourage the district supervisors to get this most important work accomplished. It is further recommended that the findings of these surveys be used in formulating deer season recommendations.

Prepared by: Louis E. Brunett
Louis E. Brunett
Deer Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: J. W. Farrar, Study Leader & L. D. Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-7 Job Title: Disease Study

Summary: One field trip was made to Louisiana by personnel of the Southeastern Cooperative Wildlife Disease Study (SCWDS) during the period covered by this report. Intensive investigations of disease and parasite conditions were made of three deer collected from the lower Atchafalaya Swamp area in which the deer had reputededly suffered chronic die-off type mortalities. Ectoparasite collections were made from all major deer herds in Louisiana and forwarded to the SCWDS for identification and evaluation.

Background: A thorough knowledge and understanding of disease and parasite problems are an integral part of sound scientific deer management. Through its investigations the SCWDS has made and will continue to make significant contributions in this field of study. Efforts to determine the cause, or causes, of disease and parasite outbreaks in our southern deer herds must be continued. Knowledge gained will be used in the formulation of preventative and control measures to be carried out in the wildlife management programs.

Objective: To conduct field and laboratory investigations of wildlife parasites and diseases.

Procedures: All procedures used are governed by the SCWDS.

Findings: All findings resulting from information collected under this study are reported on by SCWDS. One field trip was made to Louisiana by the SCWDS during the period covered by this report.

This investigation complete with field laboratory facilities was made of the deer herd of the lower Atchafalaya Swamp area near Morgan City, Louisiana. Hunting clubs of this area reported chronic deer die-offs occurring over a period of several months and some reports of mortalities resulting from undetermined causes were substantiated by Louisiana Wild Life and Fisheries Commission personnel.

From three deer collected for study purposes no unusual disease or parasite conditions were evident, nor were there any indications that significant losses had occurred from disease and parasite entities in the recent past, according to the SCWDS.

The collection and examination of ectoparasites taken from wild white-tailed deer comprised another primary achievement under this job during the period indicated. These ectoparasites were collected from deer killed on managed deer hunts and forwarded to the SCWDS for subsequent examination and indentification by the USDA Laboratory at Beltsville, Maryland. Ectoparasite reports were received from forty-one samples taken from white-tailed deer.

Nothing unusual was found in these ectoparasite samples.

Recommendations: Continued efforts should be made to investigate diseases and parasites of our major deer herds in order that we may increase our management efficiency.

Prepared by: J. W. Farrar
J. W. Farrar
Deer Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I - 8 **Job** Title: Establishment of Browse

Period Covered: July 1, 1968 through June 30, 1969

Summary: A study of the interrelationship of slash pine and yaupon was established in February 1967 on the Red Dirt Wildlife Management Area. The study is being conducted on twelve one-tenth acre plots. The slash pine was planted on all plots on an 8 foot by 8 foot spacing. The yaupon was put in three plots at each of three stocking rates. Three plots were used as controls. Necessary measurements were taken during this segment.

Background: Large landowners who have planted pine seedlings on vast acreages of cutover pine land have indicated that deer browse species could be planted within the pines provided competition did not exist. The extent of this competition should be investigated with the inclusion of various field tests conducted with browse species to be introduced.

Objectives: To determine if deer browse plants can be introduced on pine sites and if competition will exist between the plants and pine and at what stocking rate competition occurs. To determine the best method of seeding deer browse plants to get the highest percent of germination.

Procedures: In February 1966, on the Red Dirt Game Management Area, study plots were established with seedlings of slash pine and yaupon. All plots were one-tenth acre in size. The yaupon was put three plots at each of three stocking rates. The plots were established in the following manner: (1) three plots of slash pine and yaupon at 720 plants per acre; (2) three plots of slash pine and yaupon at 360 plants per acre; (3) three plots of slash pine and yaupon at 160 plants per acre and (4) three plots of slash pine only.

During January 1967, the United States Forest Service burned the compartment where the above study plots were established destroying the young pine and yaupon. More pine seedlings were obtained and the plots were re-established. The yaupon seedlings were not put in.

Yaupon seedlings were put in the study plots in March of 1968. The same rates were used as described above.

Yaupon seed were collected and planted under field conditions. Some were planted under longleaf pine that were approximately 12 inches D.B.H. Others were planted in an old food plot that had not been plowed in three years. These seeds were planted in late February, 1969.

Findings: Measurements were taken of the pine and yaupon.

None of the yaupon seed planted in February, 1969 have started coming up. Normally the seed will stay on the soil approximately a year before germinating. These will probably not germinate until the spring of 1970.

Recommendations: It is recommended that this job continue with emphasis placed on checking the yaupon and pine seedlings at the end of the growing season to determine if competition exists.

Prepared by: Louis E. Brunett
Louis E. Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: J. W. Farrar, Study Leader & L. D. Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-9 Job Title: Preliminary Parasite Survey

Period Covered: July 1, 1968 to June 30, 1969

Summary: Five deer were necropsied for the purpose of this study. Three of these deer were collected in the Winn Parish deer study enclosures which are research study pens with known stocking levels. A necropsy was also performed on a deer found incapacitated and near death by hunters in the vicinity of Union Wildlife Management Area. In addition a deer was collected from an overpopulated range in East Carroll Parish and necropsied for study purposes. No outstanding parasite infestations or disease conditions were evident with the exception of two deer from the enclosures exhibiting fairly high levels of parasitism by forms characteristically affecting the digestive tract(abomasum, small intestine, and ceacum).

The deer submitted by the hunters was found to have been shot through the lumbar region by a bullet from a small caliber rifle or more likely buckshot, presumably during the either-sex deer season held one week prior. No unusual parasite or disease conditions were evident.

No unusual parasite infestations or disease conditions were found in the deer collected in East Carroll Parish with the exception of a very low number of adult lung worms (Dictyocaulus sp.) which at the present time poses no serious threat to the deer herd.

Background: There is a definite need to determine the common parasites ocurring in the deer herds of the state. The presence of parasites in the deer herds poses a potential threat if not recognized and thoroughly understood. Efforts must be made to determine what parasites occur in healthy deer, from what areas of the state they can be expected, and what levels are most common. Most of this work done in the past has dealt primarily with deer from overpopulated herds. These findings consequently, have not provided a true picture of parasitism in normal healthy deer herds from well-balanced ranges. Familiarization with the parasites commonly found in healthy deer will enable our biologists to detect increases in normal parasite levels and become more aware of trends toward overpopulation. As an additional benefit, this study will serve as an ideal means of acquainting our technicians with autopsy procedures and internal anatomy of the white-tailed deer.

In this study deer are to be collected from all areas of the state and autopsied. Attempts will be made to identify all parasites found during these investigations and determine normal infection rates. Specimens of parasites will be photographed and preserved where possible for future reference. A check list with pertinent information on the various species found will be prepared.

Objectives: The objectives of this job are to compile a list of the common parasites of the white-tailed deer in Louisiana and familiarize technicians with these forms and their associated pathology. Color slides will be taken of as many parasites and pathological conditions as possible.

Procedures: Standard post-mortem examination procedures were used for these studies. Each deer was methodically disected and inspected for parasites and tissues that appeared to be abnormal.

Findings: Two deer from the Winn Parish deer study enclosures showed indications of moderate to heavy parasitism by presumably, hook worm (*Monodontus louisianaensis*) and/or capillary worm (*Capillaria bovis*). Both had a moderate to heavy infestation of gullet worms (*Gonglonema pulchrum*) which seems to be characteristic of most deer from this area. One of the two exhibited evidence of a moderate infestation of medium stomach worms (*Ostertagia-Skrjabinagia* complex), as well as a few hemorrhagic spots in the mucosa of the cecum indicative of probable light infestation of whipworms (*Trichuris ovis*) and/or nodular worms (*Oesophagoostomum sp.*).

A yearling female, incapacitated and near death, was submitted by hunters who found her in this condition near Union Wildlife Management Area. The subsequent necropsy revealed the condition to be due to a gun shot wound in the lumbar region with resulting internal hemorrhage and infection. The wound was presumably inflicted by a bullet from a small caliber rifle or more likely by a buckshot during the either-sex deer season held one week prior. Three abdominal worms (*Artionema tundra*) were found but no unusual parasite or disease conditions were evident.

An adult female was collected from an overpopulated range in East Carroll Parish for purposes of the study. The necropsy of this animal revealed no unusual parasite or disease conditions with the exception of the presence of what was tentatively identified as two or three adult lungworms (*Dictyocalus sp.*)

This parasite is generally non-pathogenic or mildly so in the adult form and, at this low level, it poses no serious threat to the deer herd at the present time. Probable light infestation of medium stomach worms (*Osteragia* - *Skrjabinagia* complex) was also noted.

Ectoparasites on all the animals examined were few in number and confined to ticks common to each area with lesser numbers of the deer louse fly (*Lipoptena mazamae*).

Identification of the parasites listed in this report should be regarded as tentative identifications only unless otherwise specified. These identifications were made by taking into consideration the host species, characteristic pathology, and deer herd history. All examinations employed gross techniques.

Recommendations: This study should be continued in order that we may maintain proficiency in making gross examinations of deer associated with problem herds, general condition studies, or unexpected mortalities. This will enable our field personnel to detect parasite and disease problems in deer herds under observation during the course of normal field activities. In addition, we will ultimately be able to more fully understand the relationship between parasite levels and optimum deer populations. This experience will also serve to acquaint the field technician with the more common disease or parasite conditions and; as a result, he will be more fully qualified to recognize major disease or parasite problems should they become a reality.

Prepared by: J. W. Farrar
J. W. Farrar
Deer Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-11 Job Title: Cooperative Range Study

Period Covered: July 1, 1968 through June 30, 1969

Summary: This is a cooperative study between the United States Forest Service and the Louisiana Wild Life and Fisheries Commission. This study is designed to gain a better understanding of the interrelationship between deer and their range to form a basis for intergrating timber and deer management on the loblolly - shortleaf pine - hardwood type in Louisiana. Three deer enclosures, each 160 acres in size, were constructed on an area representative of the forest type. In addition, a 20 acre exclosure was paired with each enclosure as a check.

A pond approximately one-half acre in size was excavated in each enclosure.

The enclosures were stocked at the rate of one animal per 20, one per 40, and one per 80 acres.

The Louisiana Wild Life and Fisheries Commission is charged with the responsibility of maintaining the fence and its right-of-way, the pond levees, the proper number of animals in each enclosure, and the collection of animals from each enclosure and their replacement.

The Forest Service is charged with the responsibility of the vegetative measurements and their analysis.

This study was set up to run for ten years and this is the last year.

Background: In Louisiana there are approximately 4,500,000 acres in the loblolly - shortleaf pine - hardwood timber type,

the majority of which is located in the central, north, and northwestern part of the state. With the rapid clearing of the rich alluvial flood plain lands of the Mississippi River for agricultural purposes, future deer hunting will be concentrated in the loblolly - shortleaf pine - hardwood timber type. To properly manage the understory of this vast plant community, it is important to learn deer carrying capacity, indicator species, the ecology of the understory at the proper stocking rate, and the effects of mast availability on utilization of the browse species by deer.

Objectives: The objectives of this job are: (1) to check the fence around three 160 acre deer enclosures and the 20 acre controls and to keep the fence right-of-way free of brush and to maintain the levees and spillways of the watering ponds, (2) to verify the presence of the proper number of deer in each enclosure, (3) to get weights, measurements, physical condition and check the deer for internal and external parasites in the enclosures and replace the animals in an orderly manner.

Procedures: The fence around the three 160 acres enclosures and their 20 acre controls was inspected every two weeks and immediately after each heavy rain and high wind for washouts and trees that may have blown on it.

The presence of the proper number of deer in each enclosure was verified during the intensive effort to remove deer from each enclosure.

To get weights, body measurements, physical condition and check the parasites, one deer was removed from each enclosure by shooting. Two animals were to be removed from the eight deer enclosure; after the removal of one, an intensive effort was made to remove the second, and it was decided to postpone this removal for another year.

The animals removed from each enclosure were weighed while being examined for general physical condition and internal and external parasites. The examinations were made by biologist Jerry Farrar.

Findings: The fence was checked, its right-of-way and spillways and levees of the watering ponds were maintained.

Mr. Farrar reported that all deer removed and examined were in satisfactory condition with the exception of the one removed from the two deer pen. This animal was in noticably poorer condition and was apparently heavily parasitized with forms affecting the small intestional tract.

Findings of previous autopsy work revealed no excess burden of intestinal parasites.

Recommendations: This job is scheduled to be terminated by June 30, 1970. It is recommended that all collected data be analyzed and the information acquired be used to better manage deer in this particular timber type.

Prepared by: Louis E. Brunett
Louis E. Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: J.W. Farrar, Study Leader and L. D. Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-12 Job Title: Rumen Content Analysis

Period Covered: July 1, 1968 to June 30, 1969

Summary: Rumen samples from approximately 1 dozen (12) white-tailed deer have been collected for analysis. Quart jars filled with formalin were distributed to technical personnel throughout the state in order that rumen samples could be collected as opportunities permitted.

Background: The food habits of white-tailed deer vary according to area, locality, and season of the year and generally remain poorly understood by wildlife technicians. Long range studies of deer stomach samples provides a means by which biologists can learn more about the normal year round diet of the average deer. Food habit studies in the past have left much to be desired from the standpoint of determining the year round diet naturally selected by deer that are free ranging in habitat in which they thrive. Modern microscopic techniques will enable us to identify much of the plant material found within the samples. The information gained will provide for a broader knowledge of the food habits of the white-tailed deer and serve as a contribution toward more efficient management of this game animal.

Objectives: This job is designed to provide information pertaining to the seasonal food habits of the white-tailed deer in Louisiana.

Procedures: Rumen samples were placed in quart fruit jars containing a 10 percent formalin solution. Care was taken to insure that all of the sample material was covered with the formalin solution so as to reduce the possibility of sample spoilage. The date of collection and the collection locality are scratched into the jar lid with a knife point so as to eliminate the possibility of losing the identity of sample material through misplaced or destroyed labels.

Findings: No further attempt at analysis of sample material collected under this job will be made until such time as large numbers of samples from major deer herds are available. A preliminary inventory of samples in storage indicates insufficient sampling from various regions of the state. In addition more samples are needed representing the various seasons of the year. If the original objective of this study is to be realized, field collections will need to be continued. A collection of reference plant material will be made from the major areas represented, at the completion of rumen sample collections. This plant material will be preserved in 10 percent formalin in order that it can be used as a basis of comparison at the time the rumen samples are analyzed.

The primary emphasis of this study is now being placed on the collection of sample material at times of the year other than the hunting season.

Recommendations: Field personnel in all areas of the state should be equipped with a supply of rumen sample collecting jars in order that they may utilize every available opportunity to collect rumen samples. At the present time the majority of samples have been obtained during the hunting season resulting in a shortage of samples taken during spring, summer and various off season months for some regions of the state. An inventory should be made of samples in storage to determine the exact areas and months of insufficient sampling. Efforts of field personnel should then be directed toward completion of a collection that would include large numbers of samples obtained at all seasons of the year from the major deer herds of the state. Better cooperation from field personnel toward collection of sufficient number of samples must be realized if analysis is to be made in the near future. A collection of reference plant materials should be made from each of the major areas represented by rumen sample collections, prior to the analysis of sample material.

Prepared by: J. W. Farrar
J. W. Farrar
Deer Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-14 Job Title: Deer Publication

Period Covered: July 1, 1968 through June 30, 1969

Summary: Background and supporting data collected during this period were assembled and reviewed.

Background: The publication of information collected on deer in Louisiana pertaining to life history, habits, range, wildlife management area kill data, restocking program, and past management is necessary if this information is to be utilized in Louisiana's management program.

Objective: To prepare a publication for distribution to interested citizens and sportsmen from deer data that has accumulated through the years 1949-1969.

Procedures: Background and supporting data obtained during this period relative to the publication were assembled and reviewed. It is anticipated, at this time the publication will be finished and ready for distribution by June 30, 1970.

Recommendations: It is recommended that this job be continued with the same objective as was set forth for the year 1968-69. It is further recommended that selected biologists prepare the publication.

Prepared by: Louis E. Brunett

Louis E. Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett, Study Leader & Larry Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-15 Job Title: Palatability of Sprouts

Period Covered: July 1, 1968 through June 30, 1969

Summary: A study area was set up to produce sprouts on desirable deer browse species with herbicide, by burning and by cutting. The herbicide used was 2, 4, 5T. An abundance of sprouts was produced by all treatments. Sprouts produced by the various treatments were collected for analysis.

Background: Timber managers are using herbicides to control brush and hardwoods to establish and grow pine. Some deer browse species treated with herbicide produce sprouts after the chemical has killed the main stem of the plant. In the future the landowners may desire to manipulate deer habitat with herbicide. In order to evaluate the effectiveness of such herbicidal treatment, it is necessary to determine if the sprouts produced retain the herbicide and the effect this will have on its utilization by deer.

Objectives: The objective of this job is to determine if sprouts produced by 2, 4, 5T treated browse species retain the berbicide and the effect it has on their palatability.

Procedures: To accomplish the objective of this job sprouting of deer browse species was induced by three methods: (1) herbicide treatment (2) burning and (3) cutting. A cattle free study area was selected on the Red Dirt Game Management Area. This area was situated in a stream bottom that was extremely wide. The overhead canopy of the study area was of medium density and made up of loblolly pine (Pinus taeda), white oak (Quercus alba), water oak (Quercus nigra), and beech (Facus grandifolia). The understory was made up of black gum (Nyssa sylvatica), maple (Acer rubrum), spring huckleberry (Vaccinium elliottii), yaupon (Ilex vomitoria), azalea(Rhododendron canescens), water oak, sweetleaf (Symplocos tinctoria), witch-hazel (Hamamelias virginiana), Whitebay (Magnolia virginiana)parsley hawthorn (Crataegus marshallii), largeleaf gallberry (Ilex coriacea), candleberry (Sebastiana ligustrina), and flowering dogwood (Cornus florida). This area was chosen because a variety of plants could be treated on a small area.

The study area was divided into four plots. Each plot was approximately one acre in size. Desirable and intermediate preference deer browse species on one plot were treated with 2, 4, 5T (four pounds acid equivalent per gallon) at a concentration of eight pounds acid equivalent per hundred gallons of water and diesel oil emulsion. The herbicide was applied to each plant through the use of a back pack type sprayer.

Deer browse species, on one plot, considered to be of desirable and intermediate preference were cut with a brush blade. There was no effort made to cut these at any specific height. The cut was made at a convenient height anywhere near ground level to 18 inches.

One plot was burned in March, 1969. One plot was not treated and is used as a control.

This study was run in 1966 and again in 1967 but the sprout samples analyzed were not large enough to test for the retention of the herbicide.

Observations are being made to determine if there is a choice made by deer between the sprouts produced on browse species as treated by the three methods described above.

Findings: Samples of sprouts produced by the various treatments were gathered from yaupon, red bay, largeleaf gallberry and maple. These were carried to the Cooperative Wildlife Research Unit at Louisiana State University where they were dried. Then they were turned over to the feed and fertilizer laboratory for analysis.

From periodic observations more deer utilization is occurring on those plants that were burned. Availability of those sprouts produced by cutting is limited. The deer will not go through the brush tops to get to the sprouts.

Recommendations: It is recommended that this job be continued through the 1969-70 fiscal year. This will allow the sprouts to be tested for nutritional content and those produced on the herbicide treated plants to be tested to see if the sprouts retained the chemicals.

Prepared by: Louis E. Brunett
Louis E. Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett, Study Leader & Larry Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-17 Job Title: Burning Study

Period Covered: July 1, 1968 through June 30, 1969

Summary: On the Red Dirt Game Management Area, a three acre plot was established and burned during the summer of 1965. It will continue to be burned every two years until it has been treated three times. A three acre control plot was established adjacent to it.

On Red Dirt, four plots, each two acres in size, were established and three of these were burned in March, 1965. These will be burned; one every year, one every two years, and one every three years until enough data are gathered to determine when to burn so the deer range will receive the greatest benefit. One plot will be used as a control. On the Catahoula Game Management Area, four plots, two acres in size, were established and receive the same treatment as those on Red Dirt.

Background: Fire is being used in pine forests as a management tool. Application of fire usually kills the main stem of the plants and often induces sprouting at the root collar. Deer feed heavily on these sprouts. Although foresters presently burn on a three year rotation, it is necessary for wildlife managers to learn the frequency to burn in order to keep the browse plants producing an abundance of sprouts.

Objectives: To determine the effects of summer burning on deer browse species along the stream bottoms in the longleaf pine timber type. To determine the effects of winter burning every year, every two years, and every three years on deer browse plants in the longleaf pine, and loblolly-shortleaf pine-hardwood timber type.

Procedures: On the Red Dirt Game Management Area, in the stream bottom of Steep Hill Creek, two adjacent plots, each three acres in size, were established. One of these plots was burned in June, 1965. The other plot will not be burned and will be used as a control. These plots begin in the creek bottom and extend out to and include a hillside. The treated plot was to be burned every two years, in June until it was burned three times. It was burned the third time in June, 1969.

On Red Dirt, four plots, each two acres in size, were established. These plots begin in the creek bottom of Steep Hill Creek, and extend out onto the hillside. These plots will be burned in the following manner: (1) one burned every year, (2) one burned every two years, and (3) one burned every three years. Three of the plots were burned in March, 1965. One plot will not be burned as it will be used as a control. These plots will be used to accomplish the objectives related to the longleaf pine timber type.

On the Catahoula Game Management Area, in the loblolly-shortleaf pine-hardwood timber type, four plots were established. Each of these plots is two acres in size. The plots are side by side beginning in a stream bottom and extending out onto a hillside. Three of these plots were burned in January, 1965. One plot will not be burned, one will be burned every year, one every two years, and one every three years.

On Red Dirt and Catahoula, the plot to be burned annually was treated in March, 1966. During this segment the plots to be burned annually and the one to receive treatment every two years were burned in February, 1969.

After the 1965 growing season, deer browse species on all the study plots were marked and checked. They were marked so the same plant could be checked each year. The plants were checked by noting the condition of the main stem, counting the number of sprouts produced by each old stem, and by getting the total length, to nearest half inch, of the main stem of each sprout.

An effort was made to check on each plot 10 plants of each specie selected for study. However, that number of some species was not present on every plot. On Red Dirt, on the plots burned in winter, those species selected for study were yaupon (Ilex vomitoria), blackgum (Nyssa sylvatica), maple (Acer rubrum), and whitebay (Magnolia virginina). On Catahoula, the species selected were ash (Fraxinus pennsylvanica), water oak (Quercus nigra), elm (Ulmus alata), maple, blackgum, and dogwood (Cornus florida).

On Red Dirt, on the plot burned in the summer, the species selected for study were dogwood, maple, whitebay, blackgum and yaupon.

On the plots burned in the winter on both Red Dirt and Catahoula, permanent line transects were established to check the specie and number of forbs that would come in. On Catahoula, six transects one chain long, were established on each study plot. On Red Dirt, the transects were the same length, but only three were established on each plot. A surveyor's chain was used for the line. The chain was stretched between two points and all forbs directly under it were identified and counted.

On all plots. photography points were set up. Photographs were taken.

Findings: During this segment all necessary data was collected.

Recommendations: It is recommended that this job be continued until enough data are collected and evaluated to determine any differences in the effects burning at various times on deer browse species.

Prepared by: Louis E. Brunett
Louis Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett, Study Leader & Larry Soileau, Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-18 Job Title: Timber-Browse Relationships

Period Covered: July 1, 1968 through June 30, 1969

Summary: Study plots are established on the Saline Wildlife Management Area to gather data on the response of bottomland understory plants to two levels of thinning, medium and heavy, in three distinct plant communities. Plots have been established on the Russell Sage Wildlife Management Area to study eradication of overcup oak and bitter pecan by five methods and the effects this will have on the other vegetation.

Background: The Louisiana Wild Life and Fisheries Commission has purchased approximately 100,000 acres in the bottomland hardwood timber type. A timber management plan is to be drawn up for each area. The timber will be managed in such a manner as to provide the maximum game producing forest. A study is necessary to provide the maximum game producing forest. A study is necessary to provide data to draw up a timber management plan that will provide a habitat of high quality for deer and other wildlife.

Objectives: To accomplish the objectives, study plots are established on the Saline Wildlife Management Area in LaSalle and Catahoula Parishes and on Russell Sage in Ouachita and Richland Parishes. On the Saline Area, the objective is to gather data on the response of bottomland understory plants to two levels of thinning, medium and heavy, in three distinct plant communities. The objectives of the Russell Sage study are: (1) to determine an effective method of eradicating overcup oak-bitter pecan understory in bottomland hardwoods; (2) determine the change in the vegetation pattern following the various treatments; (3) determine the approximate amount of animal usage on browse species within the study area; (4) determine survival rate of underplanted hardwoods on treated areas.

Procedures: On the Saline Wildlife Management Area 27 plots, each four acres in size were established. These plots were grouped in lots of nine. Each group of plots represents one of three plant communities. Those communities are: (1) overcup oak-bitter pecan, (2) nuttall oak, ash, overcup oak, bitter pecan with the absence of palmetto, and (3) ash, overcup oak, bitter pecan, water oak, nuttall oak, rock elm and palmetto. Each community represents a different topographic elevation.

Each plot within the group of nine is four acres. In each group three will be subjected to heavy thinning, three to a medium thinning, and three will be used as controls. Smaller study plots will be established around the center of each four acre plot. The exact study scheme has not been decided. This will be determined after each plot is treated.

On the Russell Sage Wildlife Management Area, the procedures are different from those for the study on the Saline Area. Two study areas were selected in an overcup oak-bitter pecan stand. The dimensions of each study area are 22 by 23 chains. Four base lines, 22 chains in length and 5 chains apart, are being established in each area. Along the base line, 6 study plots measuring two chains square with a buffer zone between have been established. Six treatments were applied to the plots on each line. This made 8 replications of each treatment occurring within the total 8 lines, all were selected randomly. The six treatments are (1) burning, (2) mist blown herbicide, (3) direct flame treatment with flame thrower, (4) mechanical-hand cut and herbicide treated stumps, (5) bulldozer with brush blade and (6) control. Each treatment was underplanted with nuttall oak (Quercus nuttalli) seedlings. On these, seedlings survival and height growth will be measured.

A plot measuring 40 links square was established in the center of each two chain square plot and will be divided into 16 milacre plots, two of which were selected randomly for intensive study. One was fenced deer and rabbit proof, the other, unfenced. Animal usage will be noted by monthly comparisons of fenced to unfenced plots. Composition studies are being made to determine the species present in the two selected milacre plots and percentage of the total each specie occupies.

Permanent camera stations were established at each milacre plot, fenced and unfenced, for photo comparisons. Photos are being taken when apparent changes occur.

Mr. Jerry Farrar, Deer Research Biologist, established the study on Russell Sage and has used the data gathered to prepare a thesis as a requirement in earning a Masters Degree in Game Management, at Louisiana State University.

Findings: All necessary data pertaining to the study on Russell Sage was gathered. The summary and conclusions of the thesis prepared by Mr. Farrar are attached. The study areas on Saline are being completed.

Recommendations: It is recommended this study be continued until enough conclusive data is obtained. Techniques found best to manage timber in such a manner as to provide the maximum for game will be incorporated in a timber management plan.

Prepared by: Louis E. Brunett
Louis E. Brunett
Study Leader

CONVERSION OF THE UNDERSTORY IN THE BOTTOMLAND HARDWOODS OF RUSSELL SAGE WILDLIFE MANAGEMENT AREA

SUMMARY AND CONCLUSIONS

Of Thesis

By: Jerry Farrar

The Louisiana Wild Life and Fisheries Commission has recently been faced with a critical need to improve bottomland hardwood timber stands on publicly owned wildlife management areas. Prompted by this need, the agency sponsored preliminary research into methods of stand conversion on Russell Sage Wildlife Management Area. This area was chosen for the pilot studies, since it has a larger volume of hardwood timber of better quality that is in need of management. Since the area supports a dense understory of undesirable species, composition would not be improved by thinning or other manipulation of the overstory. The conversion, therefore, must be undertaken from within the understory by reducing undesirable species and introducing those that are preferred.

Little is known about techniques required for understory conversion in bottomland hardwoods. Mindful of this fact, this study was designed to test methods of stand conversion in the Overcup Oak - Water Hickory Type, which comprises the major portion of all the aforementioned wildlife management areas.

The first objective of the study was to determine an effective method to eradicate or significantly reduce the overcup oak-bitter pecan

understory. For this purpose a study area of approximately 112 acres was chosen and 48 plots of equal size were systematically established within. Five methods of stand conversion were tested on a random basis within the 48 plots in such a manner as to provide 8 replications of each treatment method and the control. The treatment methods tested were: (1) fall burning, (2) mist blown herbicide, (3) direct treatment with a flame thrower, (4) mechanical cutting combined with herbicidal treatment of stumps, (5) clearing of the understory with a bulldozer equipped with a brush blade and (6) control with no treatment.

The major understory species were bitter pecan, overcup oak, green ash, buttonbush, and swamp privet.

The flame thrower treatment gave the best results of those methods tested that did not involve mechanical removal of the understory. Fall burning and mist blown herbicide treatments, in that order, provided the next best results. On bitter pecan, overcup oak, green ash, buttonbush, and swamp privet, in that order, mainstem mortalities by treatment were: 61.5 percent, 85.5 percent, 60.9 percent, 93.9 percent, and 60.9 percent for the flame thrower treatment; 60.9 percent, 33.8 percent, 44.0 percent, 91.7 percent, and 52 percent for the fall burning treatment; and 23.7 percent, 32.8 percent, 40 percent, 75 percent, and 0.0 percent for the mist blown herbicide treatment. Natural mortality was reflected in the control at rates of 4.6 percent, 7.3 percent, 0.0 percent, 28 percent, and 3.6 percent, respectively.

Prescribed burning offered the most economical approach with only $7.46 per acre total cost by the most expensive means. The bulldozer treatment could be used by Louisiana Wild Life and Fisheries

Commission for a cost of approximately $23.52 per acre. The flame thrower treatment would average a cost of $48.55 per acre. The mist blown herbicide treatment would cost $16.50 per acre for materials and labor only. The cut and stump treated method could be applied for $57.48 per acre.

From findings of this study, it seems that the bulldozer and burn treatments would offer the better results and yet remain economical to use. Sprout control following a burn could probably be best achieved through mist blown herbicides and/or another burn. The same would be applicable to the bulldozer treatment. The use of a doubledrum brush cutter to mechanically remove sprouts may be appropriate in the more difficult cases.

If labor requirements could be met for the cut and stump treated treatment, it would prove to be a desirable method, also.

Other objectives of the study were to determine the change in the vegetative pattern following the various treatments, and to determine the approximate amount of animal usage on plant species within the study area.

To accomplish both objectives, two milacre plots were established on a random basis within each treatment plot for use in intensive composition and frequency studies. One plot was fenced and the other unfenced in order to determine animal utilization. Four seasonal inventories were made of the 96 plots during the study period of October 1967 through early November 1968.

Record precipitation persisting throughout the year, with the accompanying floods and soil saturation, undoubtedly affected composition and frequency of species within the plots. Fifty-three

seperate species occurred within all plots. Total numbers of plants, in order of greater abundance, occurred within the burn, the bulldozer treatment, the control, the cut and stump treated treatment, the flame thrower treatment, and the mist blown treatment. Composition and frequency varied widely and inconsistently among the fenced and unfenced plots of the various treatments. These differences appeared to reflected variations in soil fertility and moisture conditions more than animal utilization.

Fenced plots showing higher occurrence rates than unfenced plots, and unfenced plots exhibiting higher occurrence rates than fenced plots, were equally divided among the treatments. Total plant occurrence in fenced plots was 5.3 percent greater than that of unfenced plots, in the combined totals of all treatments, however, in three treatments total plant occurrence in fenced plots exceeded that of unfenced plots by rates of 8.8 percent, 27.9 percent and 49.3 percent. In the remaining three treatments total plant occurrence in unfenced plots exceeded that of fenced plots by rates of 5.3 percent, 19.3 percent, and 37.8 percent.

Species occurrence exhibited a similar pattern. Three treatments showed occurrence rates in fenced plots exceeding that of unfenced plots by 7.1 percent, 7.4 percent, and 18.5 percent. The remaining three treatments exhibited occurrence rates in unfenced plots exceeding that of fenced plots by rates of 3.6 percent, 4 percent and 8 percent. Species occurrence was 3 percent greater in fenced plots than in unfenced plots in the combined totals of all treatments, however. In

regards to animal utilization, these findings are the most meaningful of all that were provided by this study. Occurrence rates of individual species varied so inconsistently that few conclusions could be drawn from the data concerning the effect of animal utilization on composition and frequency.

The most numerous species encountered were: water willow, unknown species (2) ladies' eardrop, climbing dogbane, bitter pecan, catgrape, grasses and sedges, peppervine, Aster sp. (2) and overcup oak. In milacre plots of all treatments combined, 50.4 percent of total species occurrence was by species so sparsely distributed that plants of each comprised less than one percent of the total number present.

The final objective of the study was to determine the survival rate of hardwood seedlings underplanted on the treated areas.

From a total of 1,920 nuttall oak seedlings planted, 480 were randomly selected for intensive study. By this method 10 seedlings per plot or a total of 80 per treatment were examined. Planting survival rates ranged from 71.2 percent in the flame thrower treatment to 88.8 percent in the burn treatment. The average survival rate for underplanted seedlings over the entire study area was 78.8 percent.

From these studies, it is concluded that satisfactory results can be obtained in understory conversion of bottomland hardwoods, providing that an effective method of sprout control is also used. More research is needed, however, on this and other aspects of understory conversion in bottomland hardwoods.

Vegetative changes following the treatments, as well as the effects of animal utilization on species composition and frequency,

remain poorly understood. More research during years of normal precipitation is needed.

It appears that planting survival of underplanted hardwood seedlings is satisfactory, but long range studies are needed before final success of the program can be determined.

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Louis E. Brunett-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Deer Investigations

Job No.: I-20 Job Title: Population Dynamics

Period Covered: July 1, 1968 through June 30, 1969

Summary: On the Red Dirt Game Management Area a deer trapping operation was conducted. The area was divided into five trapping units. One hundred and ten traps were used. These were allocated to each unit on an acreage basis. During this segment 56 different deer were caught and released at the trap site.

Background: Population dynamics of a managed deer herd should be studied to gather information to properly manage all herds within the state. It is necessary to be able to estimate pre and post season deer populations; the percent killed by hunters; total annual mortality; rate of kill by sex and age class; and to relate browse surveys to population estimates.

Objectives: The objective of this job is to study population dynamics of a managed deer herd. The specific objectives are: (1) pre and post season population estimates; (2) percent killed by hunters; (3) total annual mortality; (4) rate of kill by sex and age classes; (5) to relate browse evaluation surveys to population estimates; (6) to check dentition of known aged deer as a quality control of aging techniques generally used.

Procedures: This study was started in the fall of 1966 and is being conducted on the Red Dirt Game Management Area. To accomplish the objectives of this job, 110 box traps were used to catch, mark, and release at the trap site as many deer as possible.

The sampling scheme called for dividing the area into five trapping units. All quarter sections in each unit were

consecutively numbered. Quarter sections in which traps would be located were randomly selected. One suitable trapping site was located within the selected quarter section. The number of trap sites selected was weighed according to the acreage in each subdivision.

The bait used was soybeans during the winter and salt, iodine, and potassium in the spring of 1968. Previous trapping experience on Red Dirt indicated that soybeans were a readily accepted bait during the winter while salt was better in the early spring.

Information gathered on each deer caught included date caught, trap number, ear tag number, ear tattoo number, sex, weight, and age. In the remarks column of the trapping record other information recorded on each animal was location of release, physical condition, retraps, tag numbers from years prior to this study, and any other information considered pertinent.

Findings: During the trapping operation of the winter of 1966-67, 29 different deer were caught and released at the trap site. During the fall trapping of 1967 and prior to the hunt on the area, 30 different deer were caught and released at the trap site. During the managed hunt in November 1967, 29 of the 59 tagged animals were killed.

During the trapping period after the hunt of 1967 and through the spring of 1968, 32 different deer were released at the trap site. In the fall of 1968, prior to the annual hunt, 16 different deer were trapped and released. During the 1968 hunt 16 tagged deer were killed.

During the trapping period following the 1968 managed hunt and through the spring of 1969, 44 different deer were caught. Forty of these were released at the trap site, and four were sent to the Winn Parish deer enclosures. Of the 40 released at the trap site, 28 were deer caught for the first time. The remainder were retraps.

Recommendations: It is recommended that trapping be conducted during the fall of 1969, prior to the managed hunt and none after. After the hunt all collected data should be analyzed and the results published.

Prepared by: Louis E. Brunett

Louis E. Brunett
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Hugh Bateman-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Waterfowl Investigations

Job No.: II-2 Job Title: Aerial Census of Louisiana Waterfowl

Period Covered: July 1, 1968 through June 30, 1969

Summary: Aerial census of Louisiana's transient and wintering duck populations is an important part of our state's waterfowl program. This job provides basic information relating to the time of arrival, distribution, and an index to total numbers of the important hunting species. This is our most useful tool in managing ducks through setting hunting seasons. This year a total of six monthly inventories was made.

Background: Censusing waterfowl from aircraft has long been recognized as the most practical method when dealing with large populations covering large land and water areas. Since 1957 the line transect method has been determined an adequate procedure in censusing Louisiana's large and widely distributed waterfowl populations both from an economic and usefulness standpoint.

Objectives: The objectives of this job are to:

1- Provide periodic estimates of duck populations in Louisiana's coastal marshes and ricelands and the Catahoula Lake area.
2- Continue the exploration of Louisiana's offshore waters and estimate wintering populations of scaup.

Procedures: Duck population estimates will continue to be made from the P-R Cessna 210 aircraft. The fixed line transect method described by Smith in Louisiana Waterfowl Populations Study Final Report, July 1949 - June 1961, is still in use. The following changes were made this year to

refine population estimates of waterfowl.

1- Census areas no longer pertain to the entire state as in the past. Present estimates are made in the coastal marshes and ricelands below U.S. Highway 90 and the Catahoula Lake area. This will allow coverage of most of Louisiana's important waterfowl habitat.
2- Twenty-seven north-south line transects were established in Louisiana's coastal marsh and ricelands. Transect lines were established from a sampling scheme set-up to survey the coastal marsh vegetation. All transects are parallel and are actual longitudinal lines equally separated by a constant value in each census area. Transect lines are approximately 7.5 miles apart in the southwest Louisiana census area which comprises about 4392 square miles and approximately 15 miles apart in the southeast census area which comprises about 5165 square miles. All lines run north-south between U.S. Highway 90 and the Gulf of Mexico and the census area is ¼ mile in width. This allows coverage of about 3% of the marsh and riceland area below U.S. Highway 90.
3- A total waterfowl population estimate is made on Catahoula Lake.

Findings: The findings of this study are listed on the following pages in the six completed waterfowl inventory reports.

Recommendations: This job should be continued and waterfowl census should be made bimonthly in September and October, then once each month through February.

Prepared by: Hugh Bateman
Hugh Bateman
Study Leader

LOUISIANA WILD LIFE & FISHERIES COMMISSION
P. O. BOX 44095 CAPITOL STATION
BATON ROUGE, LOUISIANA 70804

Periodic Waterfowl Population Estimates
in Louisiana's Coastal Marsh and Riceland
Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: Sept. 12-13-17-18, 1968

REPORTED BY: H. Bateman & N. Summere

Estimates made from Cessna 210 Aircraft

SPECIES**	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	50	500	250	800
Black Duck	0	0	0	0
Gadwall	0	0	0	0
Baldpate	1,000	500	250	1,750
Green W. Teal	7,000	500	500	8,000
Blue W. Teal	64,000	37,000	16,000	117,000
Shoveler	3,500	750	1,500	5,750
Pintail	1,500	750	1,500	3,750
Mottled Duck	20,000	21,000	0	41,000
TOTAL DABBLERS	97,050	61,000	20,000	178,050
Redhead	0	0	0	0
Canvasback	0	0	0	0
Scaup	0	0	0	0
Ringneck	0	0	0	0
Ruddy	0	0	0	0
Merganser	0	0	0	0
TOTAL DIVERS	NO DIVING DUCKS COUNTED			
TOTAL DUCKS	97,050	61,000	20,000	178,050
Coots	2,000	3,000	0	5,000

*See comments on back

** Wood Ducks and Geese not censused

The vast majority of Louisiana's fall and winter duck population is traditionally found in our marsh and riceland areas and on Catahoula Lake. This year monthly aerial estimates of ducks will be made in the following areas: (1) the marsh and riceland west of New Iberia, Louisiana, south of U. S. Hwy. 90, (2) the marsh and riceland east of New Iberia, Louisiana, south of U. S. Hwy. 90 and (3) Catahoula Lake.

This first inventory indicates that, as usual, thousands of transient ducks, mostly blue-winged teal, pintail, baldpate and shoveler, are daily passing through our state to winter in Mexico, Central America and South America.

Food production in most marshes appears to be good in spite of unusually heavy rains in some areas. A persistent high water level on Catahoula Lake has reduced food production by annual plants, but no drastic change in duck usuage on the lake is anticipated for this fall and winter.

400 ROYAL STREET
NEW ORLEANS, LOUISIANA 70130

Periodic Waterfowl Population Estimates
in Louisiana's Coastal Marsh and Riceland
Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: October 10, 14, 15, 16 &17, 19

REPORTED BY: H. Bateman & N. Summerell

Estimates Made From Cessna 210 Aircraft

SPECIES **	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	200	200	500	900
Black Duck	0	0	0	0
Gadwall	102,950	24,700	1,500	129,150
Baldpate	156,840	29,450	1,500	187,790
Green W. Teal	21,120	80,960	3,000	105,080
Blue W. Teal	132,680	145,560	2,500	280,740
Shoveler	22,780	12,420	1,500	36,700
Pintail	188,660	39,220	63,000	290,880
Mottled Duck	49,720	30,880	0	80,600
TOTAL DABBLERS	674,950	363,390	73,500	1,111,840
Redhead	0	0	0	0
Canvasback	0	0	0	0
Scaup	100	0	0	100
Ringneck	0	0	0	0
Ruddy	0	0	0	0
Merganser	0	0	0	0
TOTAL DIVERS	100	0	0	100
TOTAL DUCKS	675,050	363,390	73,500	1,111,940
Coots	75,660	47,700	1,000	124,360

*See comments on back

** Wood Ducks and Geese not censused

The month of October is a peak period of migration for hundreds of thousands of transient ducks that move through Louisiana to wintering areas south of the United States.

This transient movement of ducks starts to develop each year in mid-August and builds steadily until early November. Large, rapid increases in numbers and a high rate of turn-over are typical of our early fall duck populations. Unfortunately, many thousands of the teal, gadwall, baldpate, pintail and shoveler which dominate this inventory will not be around for our December duck hunting season. In fact, a large portion of all these early migrants that move on south of us totally avoid gunning pressure from U. S. hunters every year.

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
P. O. BOX 44095 CAPITOL STATION
BATON ROUGE, LOUISIANA 70804

Periodic Waterfowl Population Estimates in Louisiana's Coastal Marsh and Riceland Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: November 18, 19, 20, 21, 1968

REPORTED BY: Hugh Bateman, Nelson Summerell and Reggie Wycoff

Estimates made from Cessna 210 Aircraft

SPECIES**	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	281,000	139,000	3,500	423,500
Gadwall	853,000	456,000	3,400	1,312,400
Baldpate	436,000	378,000	6,800	820,800
Green W. Teal	394,000	188,000	20,600	602,600
Blue W. Teal	21,000	40,000	600	61,600
Shoveler	176,000	138,000	600	314,600
Pintail	436,000	104,000	102,160	642,160
Mottled Duck	40,000	68,000	0	108,000
TOTAL DABBLERS	2,637,000	1,511,000	137,660	4,285,660
Redhead	0	0	0	0
Canvasback	0	0	25	25
Scaup	14,000	0	150	14,150
Ringnecked	9,000	5,000	0	14,000
Ruddy	0	0	0	0
Merganser	4,000	9,000	0	13,000
TOTAL DIVERS	27,000	14,000	175	41,175
TOTAL DUCKS	2,664,000	1,525,000	137,835	4,326,835
Coots	183,000	896,000	600	1,079,600

*See comments on back

** Wood Ducks and Geese not censused and Black Ducks are included with Mottled Ducks

November's inventory shows a 400 percent increase in the estimated total of ducks that are present in Louisiana's coastal marsh and rice land. Perhaps the most significant aspect of this inventory is the tremendous increase in numbers of mallards, gadwalls, baldpate, shoveler, pintail and green-winged teal. A comparison of this month's inventory with November a year ago indicates that a large early migration has occured. It should be noted that while most species have increased their numbers, blue-winged teal now number less than one-quarter of their last month's estimated total.

When examining this inventory it should be kept in mind that these figures are compiled from estimates of ducks in only the coastal marsh and rice land areas below U. S. Highway 90 and on Catahoula Lake. This is best reflected in the small numbers of diving ducks reported. These species are usually found concentrated on our large open bodies of water or actually out in the Gulf of Mexico. A special scaup census conducted in late October indicated that about one half million scaup were present in Louisiana's coastal lakes, bays and along the shore waters of the Gulf.

Catahoula lake is holding a large concentration of ducks, most of which are pintails. At the present time water conditions are excellent but the duck season is still three weeks away.

BATON ROUGE, LOUISIANA 70804

Periodic Waterfowl Population Estimates
in Louisiana's Coastal Marsh and Riceland
Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: December 6, 9, 10 & 11, 196

REPORTED BY: Hugh Bateman, Nelson Summerell & Reggie Wyco

Estimates made from Cessna 210 Aircraft

SPECIES**	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	303,000	81,000	10,000	394,000
Gadwall	435,000	447,000	7,000	889,000
Baldpate	260,000	234,000	7,000	501,000
Green W. Teal	582,000	448,000	3,500	1,033,500
Blue W. Teal	30,000	33,000	500	63,500
Shoveler	152,000	58,000	0	210,000
Pintail	608,000	42,000	52,000	702,000
Mottled Duck	46,000	50,000	0	96,000
TOTAL DABBLERS	2,416,000	1,393,000	80,000	3,889,000
Redhead	0	0	0	0
Canvasback	0	0	4,500	4,500
Scaup	7,000	2,000	4,000	13,000
Ringnecked	111,000	1,000	19,000	131,000
Ruddy	0	0	0	0
Merganser	6,000	12,000	0	18,000
TOTAL DIVERS	124,000	15,000	27,500	166,500
TOTAL DUCKS	2,540,000	1,408,000	107,500	4,055,500**
oots	422,000	559,000	0	981,000

See comments on back

* Wood Ducks and Geese not censused and Black Ducks are included with Mottled Ducks

**Does not include off-shore scaup census or estimates of ducks north of U.S. Hwy. 90, except Catahoula Lake

The December inventory indicates that over four million ducks are present in Louisiana's coastal marsh and rice land areas. Reports of last week from the Atchafalaya River Basin, Red River and Upper Ouachita systems indicate large concentrations of mallards and wood ducks in flooded woodlands and soybean fields.

Recent heavy rains have improved conditions in up-state Louisiana for the coming duck season. However, these heavy rains have dispursed ducks in south Louisiana over a much wider area. Many of those marshes that were in excellent condition for ducks before the rains are now less attractive.

The total number of ducks indicated on this inventory is by no means a measure of our state's total waterfowl population. If all of the ducks, especially mallards and wood ducks, now present in Louisiana north of U.S. Hwy. 90 could be counted, along with the coastal scaup population, our state total would run well over five million ducks.

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Periodic Waterfowl Population Estimates in Louisiana's Coastal Marsh and Riceland Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: January 6, 7 & 8, 1969

REPORTED BY: H. Bateman, N. Summerell and R. Wycoff

Estimates made from Cessna 210 Aircraft

SPECIES**	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	197,000	65,000	1,000	263,000
Gadwall	423,000	507,000	0	930,000
Baldpate	209,000	161,000	0	370,000
Green W. Teal	623,000	448,000	1,000	1,072,000
Blue W. Teal	20,000	26,000	0	46,000
Shoveler	147,000	110,000	0	257,000
Pintail	372,000	212,000	6,000	590,000
Mottled Duck	30,000	40,000	0	70,000
TOTAL DABBLERS	2,021,000	1,569,000	8,000	3,598,000
Redhead	0	8,000	0	8,000
Canvasback	0	1,000	3,000	4,000
Scaup	0	595,000	26,000	621,000
Ringnecked	178,000	2,000	0	180,000
Ruddy	0	5,000	0	5,000
Merganser	6,000	12,000	0	18,000
TOTAL DIVERS	184,000	623,000	29,000	836,000
TOTAL DUCKS	2,205,000	2,192,000	37,000	4,434,000
Coots	381,000	547,000	0	928,000

*See comments on back

**Wood Ducks and Geese not censused and Black Ducks are included with Mottled Ducks

The January waterfowl inventory reflects a continued large number of ducks, though widely dispersed, in Louisiana's rice fields and marshes. The large increase in scaup reported from southeast Louisiana has resulted from a shift of off-shore birds into the shallow bays along the coast. Many thousands of scaup, however, still remain in off-shore areas.

There are still very few ducks in the Catahoula Lake area as water levels remain much above normal there.

Continued rains have kept ducks widely scattered throughout northeast and central Louisiana woodlands and bean fields. However, reports from the Beouf and Ouachita river bottom areas have been good as large numbers of mallards and wood ducks are pushed into these areas by severe cold-fronts. One large bean field area north of Harrisonburg, Louisiana in the Beouf river bottom land is holding over 100,000 pintails, 14,000 mallards and several thousand other kinds of ducks.

Please keep in mind that these estimates do not represent state-wide totals. Up-state areas,such as flooded bottomland, lakes and soybean fields, such as the example listed above, are not included in this report.

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Periodic Waterfowl Population Estimates in Louisiana's Coastal Marsh and Riceland Below U. S. Hwy. 90 and on Catahoula Lake*

DATE: February 10, 11 & 12, 196

REPORTED BY: H. Bateman & N. Summer

Estimates made from Cessna 210 Aircraft

SPECIES**	SOUTHWEST	SOUTHEAST	CATAHOULA LAKE	TOTALS
Mallard	72,000	38,000	2,000	112,000
Gadwall	248,000	451,000	0	699,000
Baldpate	78,000	481,000	1,000	560,000
Green W. Teal	318,000	242,000	3,000	563,000
Blue W. Teal	20,000	72,000	0	92,000
Shoveler	136,000	147,000	0	283,000
Pintail	189,000	137,000	4,000	330,000
Mottled Duck	17,000	38,000	0	55,000
TOTAL DABBLERS	1,078,000	1,606,000	10,000	2,694,000
Redhead	0	0	0	
Canvasback	0	5,000	7,000	12,000
Scaup	1,000	210,000	0	211,000
Ringnecked	47,000	2,000	24,000	73,000
Ruddy	0	0	1,000	1,000
Merganser	2,000	9,000	0	11,000
TOTAL DIVERS	50,000	226,000	32,000	308,000
TOTAL DUCKS	1,128,000	1,832,000	42,000	3,002,000
Coots	148,000	448,000	0	596,000

*See comments on back

** Wood Ducks and Geese not censused and Black Ducks are included with Mottled Ducks

The February waterfowl inventory will be the last regular census for the wintering period of 1968-69. The next regular inventory is scheduled for September of this coming fall of 1969.

This inventory indicates a reduction in overall numbers of ducks using the marsh areas of southwest Louisiana. High water on many rivers, the end of the hunting season, and the advent of unusually warm weather have all contributed to a general break-up of ducks on prior concentration areas.

As the weeks pass, this trend will continue to cause an increasing shift of birds back northward. As our wintering ducks began to leave, in late February, transient ducks, pintail, blue-winged teal, baldpate, shoveler and gadwall, that have wintered south of Louisiana, in Mexico, Central and South America, will begin to move through Louisiana in large numbers. By late April most of the transient ducks will have passed on north of Louisiana.

As a note of interest, the special scaup season that was held after the regular duck season closed was judged to be a failure by state and federal wildlife personnel. Best estimates indicate that participation by hunters was extremely poor and the success of those that hunted was equally as poor.

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Hugh Bateman-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Waterfowl Investigations

Job No.: II-4 Job Title: Waterfowl Trapping and Banding

Period Covered: July 1, 1968 through June 30, 1969

Summary: Efforts to band large numbers of wood ducks have been made in Louisiana for several years. The various trapping methods have been studied, tested and new techniques investigated. During the year, 671 wood ducks were banded under this study.

Background: Waterfowl trapping and banding has been one of our most useful tools in gaining knowledge on movement and mortality of waterfowl. Wood ducks are a highly important hunting species of duck and command attention in this type of study. In the past 4-5 years increased effort has been expended on this project.

Objectives: To band resident and migratory wood ducks throughout Louisiana so as to determine movement and mortality rates.

Procedures: Two methods of trapping wood ducks were employed during the fiscal year. The conventional bait trapping method and night-time, roost drives accounted for all birds banded.

Variations in types of bait and traps were investigated.

Findings: Roost drives provided 451 banded wood ducks in two trapping efforts. Bait trapping accounted for 220 birds. The roost drive method appears to be the most economical method of banding large numbers of wood ducks. However, utilization of this method is limited by the special areas needed for its proper use. Bait trapping is still the most easily applied trapping method throughout the state. However, it is in most cases laborius, time consuming and therefore expensive.

Recommendations: This job should be continued and expanded to include mottled ducks and early, transient puddle ducks. All methods of trapping should be investigated until suitable techniques are developed and trapping areas located.

Prepared by: Hugh Bateman
Hugh Bateman
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Hugh Bateman-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Waterfowl Investigations

Job No.: II-7 Job Title: Cooperation with Mississippi Flyway Council Technical Section

Period Covered: July 1, 1968 through June 30, 1969

Due to the Louisiana Wild Life and Fisheries Commission's withdrawal from Mississippi Flyway Council in July, 1968, this job was discontinued.

Prepared by: Hugh Bateman
Hugh Bateman
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Hugh Bateman-Study Leader; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Waterfowl Investigations

Job No.: II-9 Job Title: Evaluation of Physical Changes in Marsh Ponds on the Biloxi Development Project

Period Covered: July 1, 1968 through June 30, 1969

Summary: A continued study of the changes that have occurred in aquatic vegetation in marsh ponds has been made in Louisiana's brackish marshes. Salinities and quantities of vegetation (widgeon grass) in marsh ponds with controlled water levels and natural marsh ponds were measured. Over the years those marsh ponds with controlled water levels (by wooden weirs or earthen dams) have produced more aquatic vegetation than natural marsh ponds in the same area.

Background: Louisiana has expended considerable amounts of money to stabilize marsh water levels for managing waterfowl. The vast brackish marshes of our state have been subjected to much of this effort. This study was designed to measure the effects of man-made structures on aquatic vegetation.

Objectives: To measure the physical and vegetative changes in marsh ponds resulting from stablization of water levels by man-made structures.

Procedures: The procedures used in this study were those described in the completion report for Job No. 10, Work Plan II, Project 29R-7 and 8.

Field sampling was done by Fish and Game personnel of District VIII.

Findings: The measurements recorded on the study area are reported on the Table below.

VEGETATIVE SAMPLING
Widgeon Grass

Earthen Dams		Wooden Dams		Controls	
Plot No.	Vol. Ml. of Vegetation	Plot No.	Vol. Ml. of Vegetation	Plot No.	Vol. Ml. of Vegetation
1	15,604	1	15,492	1	0
2	19,340	2	12,800	2	0
3	12,340	3	14,480	3	0
4	16,420	4	10,760	4	0
5	6,550	5	18,560	5	0
6	10,260	6	10,210	6	0
Totals	80,514		82,302		0

SALINITY READINGS

Earthen Dams		Wooden Dams		Controls	
Plot No.	Ppt.	Plot No.	Ppt.	Plot No.	Ppt.
1	9.0	1	11.1	1	10.3
2	10.3	2	11.1	2	11.1
3	12.0	3	12.0	3	12.7
4	11.7	4	10.9	4	14.9
5	11.7	5	12.1	5	15.6
6	12.7	6	12.1	6	16.0
Average	11.2		11.6		13.4

All plots within ponds with stabilized water levels were found to contain the aquatic widgeon grass. Those natural marsh ponds used as controls did not.

Recommendations: This job should be terminated under this study project.

Prepared by: Hugh Bateman
Hugh Bateman
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Larry Soileau, Research Project Leader

Project No.: W-29-16 Project Title: Dove Study

Job No.: III-5 Job Title: Call-Count Survey

Period Covered: July 1, 1968 through June 30, 1969

Summary: The number of doves heard on Louisiana's 19 dove call-count routes decreased 14.6% from 226 in 1968 to 193 in 1969.

Background: The call-count survey is the only measure of the dove breeding population available. Although this survey serves as a basis for setting hunting regulations, it does not reflect reproduction which ultimately determines the size of the fall population.

Objectives: The call-count survey is designed to measure changes in the dove breeding population within the state and management unit.

Procedures: The call-count survey was conducted along predetermined routes in accordance with a set of operational procedures furnished by the Bureau of Sport Fisheries and Wildlife.

Findings: The call-count survey indicates a 14.6% decrease in the number of calling doves heard from the 1968 level as indicated in Table I.

Recommendations: The call-count survey should be continued as part of the national program of breeding population measurement. It has serious limitations, but is the only tool presently available for determining trends in the breeding population.

Prepared by: Larry Soileau
Larry Soileau
Research Project Leader

TABLE I

CALL-COUNT ROUTES

Comparison of 1968 and 1969 Routes

Route No.	No. of Doves Heard 1968	1969
0860	2	13
0900	12	17
0940	72	36
1050	31	37
1100	27	24
1210	21	16
1211	2	3
1220	3	0
1340	6	4
1350	22	20
1370	0	3
1371	7	4
1670	9	7
1980	1	4
2020	1	0
2160	0	0
2170	2	0
2280	8	4
2430	0	1
TOTAL	226	193
Average No. Per Route	11.9	10.2

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Larry Soileau, Research Project Leader

Project No.: W-29-16 Project Title: Dove Study

Job No.: III-6 Job Title: Dove Kill Estimation

Period Covered: July 1, 1968 through June 30, 1969

Summary: A dove kill survey was conducted by the Institute of Statistics, North Carolina State University, Raleigh, North Carolina. This survey utilized telephone interviews to estimate hunting trips and kill. This survey of dove hunting in the Eastern Management Unit resulted in estimates of 674,800 hunters, 4,065,900 trips (of which 637,000 were unsuccessful trips) and 19,339,700 birds killed. These estimates are 9 percent, 6 percent and 5 percent less than those of last year.

Background: The kill survey was carried out as part of a study by the Southeastern Association of Game and Fish Commissioners to test the effects of experimental changes in the bag limit in the Eastern Dove Management Unit. The methods used in the telephone survey were originally devised by the Institute of Statistics in cooperation with Louisiana and Tennessee, and then intensively developed on a statewide basis in Louisiana.

Objectives: This job is designed to provide an estimated index of dove hunting participation and harvest in the Eastern Management Unit.

Procedures: A random sample of residential telephones in the hunting states of the Eastern Management Unit were selected and called by personnel of the Institute of Statistics, North Carolina State University. All telephone interviews were conducted immediately following the close of the season.

Findings: The telephone survey of dove hunting in the Eastern Management Unit resulted in estimates of 674,800 hunters, 4,065,900 trips (of which 637,000 were unsuccessful trips) and 19,339,700 birds killed. These estimates are 9 percent, 6 percent and 5 percent less than those of last year. Within the state of Louisiana an estimated total of 56,800 hunters killed 1,359,200 doves during 296,200 trips. The statewide estimates by season segment are listed below.

Estimated From Dove Hunters Residing in Households with a Telephone

1968-69 Hunting Season

Hunting Season Segment	Estimated Hunters	Estimated Trips	Estimated Kill
September 1 - 15	51,700	182,200	686,900
October 19 - November 24	25,500	74,100	399,300
December 19 - January 5	15,100	40,000	273,000

Recommendations: The telephone survey as a method of estimating dove harvest should be continued as part of the Southeastern Association experimental regulation change study.

Prepared by: Larry Soileau
Larry Soileau
Research Project Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Larry Soileau, Research Project Leader

Project No.: W-29-16 Project Title: Dove Study

Job No.: III-7 Job Title: Dove Trapping and Banding

Period Covered: July 1, 1968 through June 30, 1969

Summary: A total of 4467 doves was banded in the state from July 1, 1968 through June 30, 1969.

Background: Each state in the Eastern Management Unit has been assigned a quota of 4000 banded doves in order to measure any change in mortality which may occur with a change in hunting regulations. This job is designed to accomplish that goal.

Objectives: This job is designed to band a minimum of 4000 doves in the state in order to measure mortality with differential hunting regulations.

Procedures: Trapping was accomplished with funnel-type baited wire box traps which were operated during June, July and August throughout the state.

Findings: The results of the trapping and banding program from July 1, 1968 through June 30, 1969 are included in Table II. A total of 4467 doves was banded in the state.

Recommendations: The state's dove trapping and banding program should be operated as part of the overall Eastern Management Unit Dove Research Study. A total of 4000 doves should be banded during the pre-season period from June through August.

Prepared by: Larry Soileau
Larry Soileau
Research Project Leader

TABLE II

MOURNING DOVE TRAPPING AND BANDING

July 1, 1968 - June 30, 1969

Banding Location	Number
Belle Chasse - Plaquemines Parish	39
Darnell - W. Carroll Parish	20
Baton Rouge - E. Baton Rouge Parish	169
Rockefeller Refuge - Cameron Parish	9
Fairbanks - Ouachita Parish	437
Bodcau WMA - Bossier Parish	188
Camp Claiborne - Rapides Parish	57
DeRidder - Beauregard Parish	134
Gilbert - Franklin Parish	78
Newellton - Tensas Parish	768
Ruston - Lincoln Parish	111
New Iberia - Iberia Parish	547
Monroe - Ouachita Parish	186
Wisner - Franklin Parish	1523
Shaw - Concordia Parish	173
Rosepine - Vernon Parish	19
Natchitoches - Natchitoches Parish	9
TOTAL	4467

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Larry Soileau, Research Project Leader

Project No.: W-29-16 Project Title: Dove Study

Job No.: III-8 Job Title: Dove Wing Collection

Period Covered: July 1, 1968 through June 30, 1969

Summary: A mail survey was initiated in order to obtain a random listing of names and addresses of dove hunters for use in a wing collection survey. A random sample of basic resident hunting license holders was mailed a card questionaire to determine whether they had hunted doves during the past hunting season. The dove hunters who responded were sent envelopes immediately prior to the following hunting season in order that they might send in a wing from each dove they kill. A total of 944 randomly selected names and addresses was submitted for use in a wing collection survey.

Background: The wing collection survey is designed to measure dove production during the study period of hunting regulation change in the Eastern Management Unit. Each state furnishes the Migratory Bird Populations Station with a random list of known doves hunters for this survey. The Bureau handles the mailing of the survey, while state dove biologists from the Southeast gather in Gainesville, Georgia to age the approximately 18,000 wings collected.

Objectives: The objective of this job is to obtain a random sample of dove hunters in the state for use in a wing collection survey. The wing survey measures production and provides information on hunting characteristics and success.

Procedures: A random list of hunters selected from year old basic resident hunting license receipts was mailed questionaires requesting whether they had hunted doves during the past season. The list of hunters responding affirmatively was used for a wing collection survey. The age ratio of the wings submitted

by hunters was determined by biologists from all Southeastern states at a wing-bee in Gainesville, Georgia.

Findings: A total of 944 randomly selected names and addresses of dove hunters was submitted to the Migratory Bird Populations Station for use in a wing collection survey. A total of 97 hunters responded submitting 214 envelopes (trips) containing 1398 wings.

Recommendations: A random list of dove hunters selected from basic resident hunting licenses should be obtained and submitted to the Bureau for use in a wing collection survey.

Prepared by: Larry Soileau
Larry Soileau
Research Project Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Larry Soileau, Research Project Leader

Project No.: W-29-16 Project Title: Dove Study

Job No.: III-9 Job Title: Dove Banding Analysis

Period Covered: July 1, 1968 through June 30, 1969

Summary: An analysis of Louisiana banding and recovery data is being conducted by a graduate student at Louisiana State University. The 37,249 banding records from 1949-66 are included as are the 2,896 recoveries through the 1967 hunting season. These banding and recovery data were stored on computer cards, and all compilations were conducted with an electronic sorter and computer. This job will be completed next year.

Background: Banding has played an important role in the research of many game birds, including the mourning dove. Since 1949, personnel of the Louisiana Wild Life and Fisheries Commission have banded large numbers of mourning doves, but a thorough analysis of subsequent recoveries has not been made. Some results of the banding analysis will be supplemented with information from other sources in order to yield a more complete understanding. These include breeding indexes from the call-count and age ratios in the fall population from the wing survey.

Objectives: The major objectives of this analysis are to determine:

1- Effects of hunting regulations on time and distribution of harvest.
2- Effects of regulations on shooting pressure.
3- Effects of regulations on mortality rates.
4- Effects of shooting on mortality rates.
5- The extent to which production compensates for the average annual mortality rates under present hunting regulations.

Procedures: Dove banding and recovery data have been stored on computer cards, and all compilations were conducted with an electronic sorter and computer These data were analyzed by a graduate student at Louisiana State University and a thesis concerning the population dynamics of the mourning dove in Louisiana will be written.

Findings: The results of this dove banding and recovery analysis will be reported upon its completion at the end of next fiscal year.

Recommendations: This dove banding and recovery analysis should be completed next year and this job will then be terminated.

Prepared by: Larry Soileau
Larry Soileau
Research Project Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Jack O. Collins, Study Leader & Larry Soileau, Project Leader

Project No.: W-29-16 Study Title: Statewide Wildlife Investigations

Job No.: V-5 Job Title: Swamp Rabbit Habitat Manipulations

Period Covered: July 1, 1968 - June 30, 1969

Summary: Twelve two acre plots located in river delta bottomland hardwoods were marked off on the Saline Wildlife Management Area, LaSalle, and Catahoula Parishes, Louisiana. Objective is to study relationships between hardwood timber thinnings and swamp rabbit populations. Rabbit proof fences were constructed around each plot after different degrees of timber thinning was employed. Four plots were used as controls; fifty percent of timber was cut on four; and twenty five percent was cut and removed from four of the plots. Random selection of plots was employed.

After fencing and logging were completed, two pairs of adult swamp rabbits were placed in each pen on February 16, 1968. Only a few rabbits remained and there was insignificant reproduction at counting time in September, 1968. The pens were restocked for further study.

Background: Two species of rabbits are native to Louisiana. One is the cottontail (Sylvilagus floridanus); the other is most commonly referred to as swamp rabbit (Sylvilagus aquaticus). The swamp rabbit occurs in bottomland hardwood forests throughout Louisiana and nearby states. It is an important game species throughout its range.

Each year large acreages of swamp rabbit habitat are being converted to agricultural uses, particularly soybean farming and pastureland. Remaining bottomlands are being managed primarily for timber production. Consequently, with a continuing decrease in timberland acreage and a growing need for more forest products the forest manager will constantly improve his timber management practices. In addition, there is an annual increase in the number of outdoor enthusiasts in this state who pursue the sport of rabbit hunting. This study is designed to help the forest manager coordinate good timber and swamp rabbit management practices.

Present swamp rabbit research is located on the Saline Wildlife Management Area, LaSalle and Catahoula Parishes, Louisiana. It is property owned by the Louisiana Wild Life and Fisheries Commission.

Objectives: To determine influence of hardwood thinnings on size of swamp rabbit (Sylvilagus aquaticus) populations.

Procedures: Twenty-four acres of bottomland hardwoods were enclosed with a five foot high rabbit proof wire fence. This area was surveyed and divided into twelve two acre blocks. (See Diagram I). For partitions, five foot high rabbit proof wire was used. In order to prevent deer from entering the study area a medium gauge hog and cattle proof wire was nailed on the outside of the rabbit proof wire around the perimeter of the study. In addition, the outside fence was extended to a height of eight feet by using strands of barbed wire placed six inches apart.

To prevent burrowing under the fence, long life wire was used to extend six inches underground beneath all fences.

Habitat manipulations were completed before fence construction was started. This was accomplished in the following manner. A 100 percent basal area survey was made of all trees 1" dbh and up on all twelve plots. Treatments consisted of different degrees of timber thinning. There were two treatments in four replications and four control plots. Plots were randomly selected for the thinning treatments. On each of four plots 50 percent of the basal area was cut and removed, and 25 percent was removed from four other plots. Selection of stems that were cut was based on the Timber Stand Improvement method used in hardwood management. For information on timber densities and composition before cutting refer to Project No. W-29R-14, Work Plan V, Job No. 5.

After fence construction was complete, all native swamp rabbits were removed from plots by means of night and day hunting with and without dogs.

In February, 1968 two pairs of adult swamp rabbits were placed in each pen. Rabbits were individually weighed, and both ears of each animal were tatooed for permanent identification. (See Table I) All rabbits were procured in East Baton Rouge Parish near Baton Rouge, Louisiana between October 10, 1967 and March 1, 1968. A total of seventy-six swamp rabbits were captured. Thirty-six were males, and forty were females. Of these, twenty-five died of shock and other causes prior to stocking. Rabbits were captured by means of wire traps, and Delicious apples were used as bait.

Findings: On all twelve plots trapping was started September 1, 1968 in order to count and remove swamp rabbits from pens. Eight traps were placed in each pen. Delicious apples were used as bait. By September most of the originally released rabbits had disappeared and reproduction was insignificant. See Table II. A total of ten rabbits was removed from pens by trapping, nightlighting and hunting pens with dogs in daytime.

Since the swamp rabbit release and reproduction phase of the study proved to be a failure, there was no way that relationships between timber thinnings and swamp rabbit populations could be studied. It was not apparent why the restocking program failed.

Between September 15 and December 1, 1968 the twelve pens were restocked. Two pairs of swamp rabbits were released in each pen. See Table III. In September, 1969 all rabbits will be counted and removed from pens.

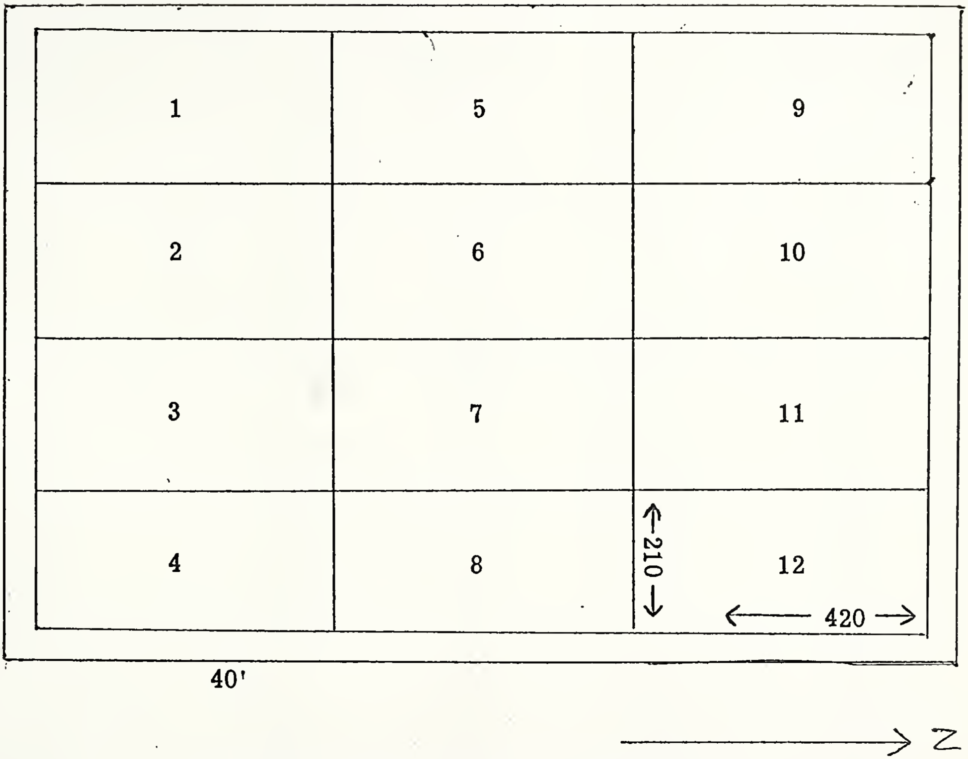
Recommendations: This job should be continued in its present form since timber thinning effects on habitat cannot be determined before several years of study are complete.

Prepared by: Jack O. Collins

Jack O. Collins, Study Leader

Diagram I

Saline Swamp Rabbit Study
Plot Layout



Treatments (Random Selection) (Basal Area)

Control - plots #12, 10, 7, 1.
50% Cut - plots #11, 8, 4, 3.
25% Cut - plots #2, 6, 5, 9.

TABLE I

DATA ON SWAMP RABBITS RELEASED IN PENS ON SALINE WILDLIFE MANAGEMENT AREA IN MID-FEBRUARY*, 1968

	MALES		FEMALES	
Pen No.	Tatoo No.	(In Ounces) Weight	Tatoo No.	(In Ounces) Weight
1	A-34	51	A-2	69
	A-38	61	B-5	62
2	A-20	75	B-23	61
	A-37	53	B-39	53
3	A-3	65	B-30	66
	A-42	60	B-40	61
4	A-23	66	B-13	65
	A-24	64	B-14	62
5	A-11	70	B-8	51
	A-30	63	B-42	63
6	A-15	80	B-4	66
	A-41	45	B-10	57
7	A-35	56	B-24	61
	A-46	73	B-43	58
8	A-4	72	B-3	71
	A-39	66	B-38	64
9	A-5	66	B-2	58
	A-18	54	B-37	54
10	A-6	76	B-20	58
	A-40	64	B-41	56
11	A-9	62	B-1	67
	A-43	55	B-34	55
12	A-7	69	B-6	70
	A-8	76	B-17	70

*All rabbits released in pens February 16, 1968 except B-43, and A-46, February 24, 1968 and A-41, March 1, 1968.

TABLE II

Rabbits Removed From Saline Swamp Rabbit Study Plots
in September, 1968 Prior to Restocking.
Four Rabbits Released in Each Pen
February 16, 1968

Pen No.	No. Rabbits Found in Pen	Tag No.	Age	Remarks
1.	1	B-65	A-M	Original Release - trapped
2.	1	B-76	A-M	Original Release - trapped
3.	1	B-64	A-M	Original Release - trapped
4.	0	-	-	-
5.	2	B-79	A-F	Original Release - trapped
		L-41, R-67	J-F	Raised in Pen - trapped
6.	0			
7.	0			
8.	2	F-71	A-F	Original Release - trapped
			J-M	Shot
9.	0			
10.	0			
11.	0			
12.	2	-	J-F	Shot - raised in pen
		-	J-M	Shot - raised in pen

TABLE III

Record of Swamp Rabbits Caught and Released on Saline WMA Study Plots Between September 18, and December 1, 1968

Released in Pen No.	Tag Nos.	Sex	Age	Where Trapped	Date Trapped	Date Rele
1.	738-739	F	Juv.	*Thist. WLMA	10/1/68	10/1/68
	L-75, R-10	F	Adult	**Happytown	10/18/68	10/19/68
	L-9, R-7	M	Adult	***Baton Rouge	10/23/68	10/24/68
	L-48, R-54	M	Adult	Baton Rouge	10/27/68	10/29/68
2.	733-734	F	Adult	Thist. WLMA	9/19	9/20/68
	735-736	F	Adult	Thist. WLMA	9/27	9/27/68
	741-743	M	Juv.	Thist. WLMA	10/1	10/1/68
	86-32	M	Adult	Baton Rouge	10/15	10/16/68
3.	751-752	F	Adult	Thist. WLMA	10/29	10/29/68
	L-17, R-99	F	Adult	Baton Rouge	10/30	10/31/68
	753-754	M	Adult	Baton Rouge	11/4	11/6/68
	L-27, R-4	M	Adult	Baton Rouge	11/18	11/18/68
4.	L-77, R-82	F	Adult	Baton Rouge	11/20	11/20/68
	L-43, R-31	M	Adult	Baton Rouge	11/20	11/20/68
	L-91, R-69	M	Juv.	Baton Rouge	11/27	11/27/68
	L-34, R-20	F	Juv.	Baton Rouge	11/27	11/27/68
5	L-78, R-58	F	Adult	Baton Rouge	10/29	10/31/68
	L-49, R-47	M	Adult	Baton Rouge	11/14	11/14/68
	L-95, R-61	F	Juv.	Baton Rouge	11/9	11/9/68
	L-88, R-30	M	Adult	Baton Rouge	11/20	11/20/68
6.	L-22, R-21	F	Juv.	Happytown	10/18	10/18/68
	748-749	F	Juv.	Happytown	10/23	10/24/68
	L-84, R-36	M	Adult	Baton Rouge	10/28	10/29/68
	L-37, R-72	M	Juv.	Baton Rouge	11/19	11/19/68
7.	L-45, R-68	F	Adult	Baton Rouge	10/25	10/26/68
	R-79, L-74	F	Juv.	Baton Rouge	10/26	10/26/68
	L-55, R-65	M	Adult	Baton Rouge	11/8	11/8/68
	759-760	M	Adult	Thist. WLMA	11/27	11/27/68
8.	L-70, R-18	F	Juv.	Baton Rouge	11/7	11/8/68
	L-51, R-13	F	Adult	Baton Rouge	11/13	11/14/68
	R-44, L-14	M	Adult	Baton Rouge	11/15	11/16/68
	757-758	M	Juv.	Thist. WLMA	11/22	11/22/68
9.	L-60, R-83	F	Adult	Baton Rouge	11/14	11/14/68
	L-53, R-42	F	Adult	Baton Rouge	11/20	11/20/68
	L-73, R-19	M	Adult	Baton Rouge	11/15	11/16/68
	L-98, R-97	M	Adult	Baton Rouge	11/28	11/28/68

TABLE III (Cont'd)

Record of Swamp Rabbits Caught and Released on Saline WLMA

Released in Pen No.	Tag Nos.	Sex	Age	Where Trapped	Date Trapped	Date Releas
10.	L-76, R-40	M	Adult	Baton Rouge	11/27	11/27/68
	L-66, R-3	M	Adult	Baton Rouge	11/18	11/18/68
	L-2, R-46	F	Adult	Baton Rouge	11/17	11/18/68
	L-86, R-96	F	Adult	Baton Rouge	11/20	11/20/68
11.	727-728	F	Adult	Thist. WLMA	9/18	9/18/68
	744-745	M	Adult	Thist. WLMA	10/2	10/3/68
	746-747	M	Juv.	Thist. WLMA	10/3	10/3/68
	B-79 (Tatoo in both ears)	F	Adult	Original release	9/5	9/11/68
12.	L-41, R-67	F	Juv.	Pen #5	9/5	9/11/68
	B-71 (Tatoo in ear)	F	Adult	Original release	9/5	9/11/68
	729-730	M	Juv.	Thist. WLMA	9/18	9/18/68
	731-732	M	Juv.	Thist. WLMA	9/18	9/18/68

* Thistlethwaite WLMA - St. Landry Parish, Louisiana
** Happytown - St. Martin Parish, Louisiana
*** Baton Rouge - East BAton Rouge Parish, Louisiana

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Reggie Wycoff-Biologist; Larry Soileau-Project Leader

Project No.: W-29-16 Project Title: Special Studies

Job No.: IX-13 Job Title: Lead Shot on Catahoula Lake

Period Covered: July 1, 1968 through June 30, 1969

Summary: The paired plots at three locations on Catahoula Lake were checked for damage to the fences which exclude livestock. It was found that one fenced plot was damaged during the high water period and livestock had entered, thus destroying this portion of the study. The fence at one other site was repaired before hogs and cattle entered the plot.

Plots that were seeded in the spring of 1966 were sampled in October of 1968. During this sampling period, only those plots at Stock Landing were sampled since the other two sites had been previously destroyed. It was determined that this was an insufficient sample and this portion of the project was excluded.

Background: Catahoula Lake is a major wintering area for waterfowl in the Mississippi Flyway. Hunters have deposited annually heavy doses of lead shot on the lake bed for many years. A recent survey by Wills and Glasgow in 1963 has shown that the lake bed contains an average of 6.2 shot per square yard.

Minor outbreaks of lead poisoning in ducks on the lake have been reported by local residents. Serious outbreaks were reported by Lynch, Yancey, Wills and Glasgow, and Newsom.

The major waterfowl food on the lake is chufa tubers (Cyperus esculentus). Lead pellets are dispersed among the tubers and ducks, especially mallards, consume many shot while feeding. The limiting factor in managing the lake for maximum utilization of the food supply by waterfowl is the

presence of large numbers of lead shot over part of the lake bed. It is believed that lead pellets sink rapidly in the soft soils, but remain available to waterfowl on the firmer soils for some time. Also, it is not known what influence hog rooting has on the availability of shot to waterfowl. A knowledge of these problems would permit the formulation of better waterfowl management plans for the lake.

Objectives: This study was designed to determine how rapidly lead shot sinks in the different soils of the lake bed and what influence the rooting of hogs has on the availability of lead shot to waterfowl.

Procedures: Paired plots have been established on three soil types on Catahoula Lake. At each site, cattle and hogs were excluded from one plot by a fence, but were not restricted from the adjacent plot.

Each plot contains 18 sub-plots having dimensions of 4' x 4' with nine being seeded in the fall and nine being seeded in the spring. Each sub-plot contains eight segments having dimensions of 1' x 1'.

Four standard sizes of lead shot, #2, #4, #6, and #8, were used for testing. Shot size for each sub-plot segment was randomly assigned with two replications of each shot size being used per sub-plot. Shot were seeded in December, 1965, for the fall plots, and in April, 1966, for the spring plots.

Soil samples will be taken in October every two years from three randomly selected sub-plots within each plot on three soil types. Eight soil cores, four inches in diameter and eight inches deep, will be removed from each sub-plot, or one per 1' x 1' segment. Each soil core is cut into two inch sections, tagged and placed in quart plastic bags.

After sampling is completed, samples will be stored until analyzed. Each two inch section will be washed independently through a series of screens to recover the lead shot. The shot are to be put in small vials with tags and put in a labeled polyethylene bag.

Lead shot will be separated according to pellet size and counted. This data will be held for final analysis.

Findings: During the period July 1, 1968, through June 30, 1969, the Willow Springs fenced plot was damaged during the high water period and livestock entered, thus destroying this plot.

Recommendations: The lead shot study on Catahoula Lake should be continued. Although the fenced plot at Willow Springs was destroyed, sufficient information can be obtained from this study to better understand the lead shot problem on Catahoula Lake.

Prepared by: Reggie Wycoff
Reggie G. Wycoff
Biologist

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Raymond J. Palermo, Study Leader: Larry Soileau, Project Leader

Project No.: W-29-16 Study Title: Exotic Bird Study

Job No.: XI-1 Job Title: Gum Cove Francolin

Period Covered: July 1, 1968 through June 30, 1969

Summary: The black francolin appears to be well established in the Gum Cove area of southwestern Louisiana. Its spread has been slow due to physical barriers but it has shown some progress the last two or three years. Call counts in 1969 yielded essentially the same number of birds as in years previous. Several broods were reported this year and numerous francolins were seen on each visit to the area.

Background: Much of Louisiana's native game habitats have been altered to meet the demands of civilization. Some game species have vanished from their native habitats and some habitats have never been fully utilized by existing game bird species. Black francolins were released on this area in 1961 and 1962 and are apparently well established. Little or no prior work has been done on the introduction of this species and it is imperative that the progress of this release be followed.

Objectives: To provide an accurate chronicle on the status of the black francolin in Cameron and Calcasieu Parishes, Louisiana.

Procedures: Most of the information was obtained through direct observation made by the study leader and from reliable individuals in the release vicinity.

All count routes were run in accordance with the established procedures. This included driving along the established routes during April or May, stopping at one mile intervals and listening for calling male francolins. Twelve three minute stops were made on one route while fifteen five minute stops were made on the other route.

Findings: Numerous visits to the release area and vicinity were made by the study leader throughout the year. Black francolins were heard calling or observed on all visits made between February and September.

Several broods were reported after July 1, 1968. The study leader observed an immature bird about twenty yards from a calling male atop a fence post. Two other broods were observed by reliable people on the area.

There was very little difference in the call count data this year when compared to 1968. In 1968, one route yielded 1.25 calling males per stop while the same route produced 1.08 this year. The other call count route is located north of the release area and consisted of fifteen stops. Two calling francolins were heard - one at a particular stop where francolins had been heard in previous years and the other at a point about 8 miles from the release site. The habitat in which the latter was located is very similar to Gum Cove, the original release area. It appears that a breeding population is becoming established in this area as evidenced by the frequent observations of francolins in the vicinity and by hearing calling males the past three years.

Recommendations: Continue running the established call-count routes and make frequent visits and inquiry in the surrounding area.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Raymond J. Palermo, Study Leader: Larry Soileau, Project Leader

Project No.: W-29R-16 Study Title: Exotic Bird Study

Job No.: XI-3 Job Title: Red Junglefowl Releases

Period Covered: July 1, 1968 through June 30, 1969

Summary: Junglefowl were observed in flocks throughout winter but separated into harem groups in February. Winter estimates varied from 20-150 birds. Crow counts were higher in 1969 than in 1968 and were more widely distributed. One active nest containing four eggs was found in April, 1969 and two broods containing a total of seven chicks were observed in June, 1969. It appeared that junglefowl survived well throughout the winter on Avery Island and they attempted to nest and rear young.

Background: Pen-reared red junglefowl were released on Avery Island in 1967. Other red junglefowl releases in Louisiana have apparently failed but this release area's habitat is quite different. They have survived well up to the present time and some evidence of reproduction has been seen. This release must be followed closely in order to properly evaluate the species in this habitat.

Objectives: To consolidate and evaluate information on the reproduction, dispersal and habitat preferences of red junglefowl released on Avery Island, Louisiana.

Procedures: The information pertaining to this junglefowl release came from direct observations by the study leader and from interested reliable individuals in the release vicinity. A fifteen-stop crow count route was run in late April, 1969. The route consisted of five minute listening stops beginning at one-half hour before sunrise. Information recorded included the number of individual birds heard crowing, direction, and the number of calls. It was felt that this census run annually would provide an index to the breeding population and also indicate the distribution of birds on the island.

Findings: Junglefowl were frequently observed throughout last fall and winter. In most instances these birds were in flocks until February when they began to separate into harem groups. Winter estimates made by the island caretaker and by other residents on the island varied from 20 to 150 birds. A conservative estimate of forty was made by this writer.

Whenever junglefowl were observed, they were near dense escape cover where they darted to when approached too closely. Bamboo thickets and similar dense vegetation seemed to be the preferred cover.

The call count route was run on May 7 in 1968 and resulted in three roosters crowing a total of eighteen times. This year's crow count was considerably higher - totaling twelve crowing cocks with one hundred calls. Crowing junglefowl were heard from ten of the fifteen stops. Although the number of crowing cocks was much higher this year, only one male and one female was observed along the route compared to three males and three females last year. This may indicate that hopefully the birds are becoming more wary and independent in their search for survival. From this winter's observations and from reliable reports on Avery Island, it appears that the birds are presently more uniformly dispersed on the island than before.

One active nest was found in April, 1969. It was located in a dense hedge which was being removed. Removal of the hedge was stopped when the nest was found but the hen deserted the nest. The four eggs were picked up and placed in an incubator. Two of the eggs appeared to be infertile, one hatched, and the other piped but did not hatch. The chick that hatched died two days later.

Two broods were seen in June, 1969. One brood had four young and the other had three. These young junglefowl were about the size of bobwhite quail and could fly extremely well. The observer of these broods was very emphatic when relating how extremely wild they were.

It appeared that junglefowl again survived well throughout the winter and attempted to nest and rear young, however, this release needs additional observation and evaluation to determine if the present population will maintain itself.

Recommendations: The Avery Island junglefowl release should be closely followed. The established crow count route should be run each year and close observations of birds should be made in an effort to determine the reproductive success of birds on the island.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Raymond J. Palermo, Study Leader: Larry Soileau, Project Leader

Project No.: W-29R-16 Study Title: Exotic Bird Study

Job No.: XI-4 Job Title: Other Releases

Period Covered: July 1, 1968 through June 30, 1969

Summary: The final release of black francolins was made on the Cloutierville area in September, 1968. Numerous sightings of francolins were made throughout the winter until February when few birds could be found. No nests or broods have been observed and it is suspected that lack of late winter cover is one of the prime factors responsible for the apparent decline. A final evaluation was made of the Bodcau and Fort Polk black francolin releases and the Fenton area Japanese green pheasant release.

Background: Pen-reared black francolins were released at Cloutierville in 1966-67, 1967-68, and 1968-69; at Fort Polk W.M.A. in 1965-66, 66-67, and 67-68; and at Bodcau W.M.A. in 1965-66 and 1966-67. Releases have terminated on these three areas but followup studies have continued in order to fully evaluate the release.

Pen-reared Japanese green pheasants were released at Fenton, Louisiana from 1964-68. Releases were terminated and follow up studies were made up to the present time.

Objectives: To consolidate and evaluate information on the survival, reproduction, dispersal, and habitat preferences of released pen-reared black francolins and Japanese green pheasants.

Procedures: Black francolins were released on only the Cloutierville release area in Natchitoches Parish this year. Birds were placed in the existing conditioning pen in early August, 1968 and all were released in September, 1968. This was the third and final year of releases. No francolins were released this year on the Fort Polk or Bodcau areas and no pheasants released at the Fenton area. Information on the progress of each of these exotic releases was collected by the study leader, reliable people working on the release areas, wildlife management area supervisors, and district personnel.

Findings: Cloutierville Area (Black Francolin) - Three hundred sixty-seven immature black francolins were placed in the existing conditioning pen at the release site in early August, 1968. These birds were released

after being conditioned for four weeks. Feed and water was made available outside the pen when the birds were released. An adult male was heard calling and a female was observed near the pen the day after the young birds were put in. Numerous francolin observations were made throughout the fall and winter. On September 30, 1968, francolin feathers and bones were found in coyote droppings near the conditioning pen. It is not known whether this bird was caught and eaten or had died of other causes.

Several reports were received from reliable people during December and January concerning observations of francolins about two miles from the release point. These birds were reportedly banded and appeared to be in good condition. A reliable individual reported observing many francolins in December while mowing pastures. He also observed one male calling in mid-January near his home which is about two miles from the release site. Fewer francolin observations have been made since March, 1969. Only an occasional bird was heard calling throughout the spring and early summer and no nests or broods have been observed. It appeared that released birds survived well from September through January but their numbers apparently dwindled after that. The reasons for this decline are not fully known but the lack of sufficient late winter cover is suspected to be the prime factor.

Bodcau Area (Black Francolin) - These findings will serve as a final report on the Bodcau area.

Description: This release area is located in extreme northwest Louisiana and consists of approximately 1000 acres of cleared land surrounded by natural pine woodlands. The cleared portion is fenced excluding cattle resulting in a heavy grass and weed ground cover. This particular area was selected because of its apparent suitable francolin habitat, the "island effect" of the cleared land, and to test francolin survival in this northern location.

Releases - A conditioning pen, 75 feet by 150 feet, was constructed at the release site using 1" poultry wire and protected by an electric wire placed near the ground in an effort to discourage predators. Two hundred seventy pen-reared juvenile black francolins were placed in the conditioning pen in late summer, 1965 and released in November, 1965 and March, 1966. An additional two hundred forty-two were conditioned the following summer of which half were released in November, 1966 and the remaining half released in March, 1967. Although over five hundred birds were placed in the conditioning pen, only approximately three hundred fifty were actually released during this two year period. Death from disease and injuries while in the pen accounted for the others.

Results - Good survival was noted throughout the winter of 1965-66. Many calling males could be heard and seen throughout the spring and summer of 1966. One francolin nest containing six eggs was found in June, 1966, while bushhogging in a mature wheat field. Calling males were also observed throughout the spring and summer until October, 1967.

Trips over the area with bird dogs were made during the winter of 1967-68 in efforts to locate francolins but none could be found. A bird dog field trial was held on the area in early March, 1968, and no francolins were observed. The last reliable report of a francolin in the vicinity was that of a female killed by a quail hunter in early February, 1968 about five miles from the release site.

It is felt that this habitat is deficient in some of the winter requirements of black francolins. In all probability, it is a combination of winter cover, food, weather conditions, plus others. In addition, the summer conditions might possibly be deficient in view of the apparent lack of known reproduction. Only one nest was found and no confirmed broods were observed.

Fort Polk Area (Black Francolin) - These findings will serve as a final report on the Fort Polk area.

Description - The Fort Polk area is located in the longleaf pine type of west-central Louisiana. Habitat consists of mostly open stands of longleaf pine with an open understory and a heavy grass and forb ground cover. A fair bobwhite quail population is present over most of this area. The prime objective was to test the black francolin's ability to survive there and to determine whether it could be established in this longleaf pine habitat.

Releases - A permanent conditioning pen, 75 feet by 150 feet, was constructed at the release site. This pen was built using 1" poultry wire with a protective electric wire near the ground. Over seven hundred pen-reared juvenile black francolins were placed in this pen over a three year period and conditioned before release. Releases were made in late fall and early spring from November 1965 to March, 1968. Of this total, approximately five hundred were actually released. The others were lost to disease, exposure, and other factors. Some land clearing and plantings were made near the release pen in efforts to hold birds in these improved areas. Plantings consisted of twenty foot wide alternate strips of sorghum and winter wheat. Some patches of browntop millet were also planted.

Results - Survival of released birds was fair for a time after release but gradually began to decline. Droppings and dust beds were observed in the release vicinity and an occasional bird was observed. As time progressed after each release was made, the amount of sign and the number of observations decreased. Calling males were frequently observed near the release site for a three month period after releases were made but disappeared in time. The habitat improvements (plantings) that were made appeared to hold a few more birds than the natural areas, but no nests or broods were ever observed on the Fort Polk area. Black francolins never showed any promise of success on the Fort Polk area. They dispersed or succumbed soon after releases were made, no nests or broods were seen, and presently no birds can be found in the release vicinity.

Fenton Area (Japanese green pheasant) - These findings will serve as a final report on the Fenton area.

Description - This area is in Louisiana's rice belt and consists of extensive rice fields and fallow fields. Many fencerows, ditchbanks, and small wooded areas are interspersed throughout.

Releases - A 30' x 70' conditioning pen was constructed at the selected release site. Over a four year period (1964-1968) approximately seven hundred pheasants were placed in the pen for conditioning before release. Some birds were released in late fall and some were overwintered in the pen and released in early spring. Supplemental feed was scattered about near the release pen after releases were made in an effort to hold birds in the area.

Results - Although about seven hundred birds were conditioned for release, it is doubtful that more than three hundred were actually released. This was due to disease outbreaks which occurred in the conditioning pen. Necropsy reports indicated that the pheasants harbored heavy burdens of nematodes in the crop and small intestine. Bacterial cultures from the pheasants yielded a Salmonella. It is believed that the heavy mortality was due mainly to the Salmonella. Another case of heavy mortality occurred one night when a predator, assumed to be a dog, broke through the pen wire and killed thirty-two birds. Sight records indicated that released pheasants dispersed from one to fifteen miles of the release site. No nests were ever found but two or three unconfirmed broods were reported. Crow counts were conducted in the release area but were discontinued after two years due to the paucity of crowing cocks. Only two or three were heard on a twenty mile route and it was felt that this number was insignificant in attempting to establish an index. These birds have obviously failed to become established or even show any favorable indication since releases were first made in 1964. Here, as in other exotic bird releases, the habitat is believed to be deficient in some of the requirements for survival and successful reproduction. It is felt that weather conditions, food supply, seasonal cover, disease, and possibly many other unknowns contributed to their failure.

Recommendations: Continue observations on the Cloutierville release area for one more year and make a final evaluation of this release.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Raymond J. Palermo, Study Leader: Larry Soileau, Project Leader

Project No.: W-29-16 Study Title: Exotic Bird Study

Job No.: XI-5 Job Title: Southwest La. Black Francolin Release

Period Covered: July 1, 1968 through June 30, 1969

Summary: Five hundred thirty-one immature pen-reared black francolins were released in southwest Louisiana during the fall of 1968. Birds dispersed about two miles and observations were frequently made for a three month period after releases were made, but dwindled during the winter and spring. A few calling males were heard during the spring and summer but no nests were seen.

Background: Black francolins are apparently established at Gum Cove, Louisiana in habitat very similar to habitat found in this area. This establishment was accomplished using wild-trapped birds. This job is being carried out to determine whether successful establishment can be made using pen-reared birds. To properly evaluate this release, information on the dispersal, reproduction and other aspects must be gathered.

Objective: To consolidate and evaluate information on the dispersal, habitat preferences, and reproduction of pen-reared black francolins released in southwest Louisiana.

Procedures: Description; This area is located on the Cameron - Calcasieu parish boundary, in southwest Louisiana approximately fifteen miles south of Lake Charles. It is natural pararie which is now cultivated. Many irrigation canals meander throughout the area. Approximately half of the tillable acreage is planted to rice annually while the remaining half is left fallow. This fallow acreage, along with canal spoils and untillable marginal land was considered to be fair black francolin habitat. The area is bordered on the south by natural marshland. Vegetative species in the area may be considered as identical to that of the successful Gum Cove release area.

Releases: After being conditioned for three to four weeks, five hundred thirty-one immature pen-reared black francolins were released on this area between October 2 and December 18, 1968. They were released at three locations, each being approximately three miles apart and together

forming a triangle. Information on the progress of this release was collected by the study leader, reliable people working in the release vicinity, and district personnel. This consisted of sight records, calling males heard, and a general evaluation of the release.

Findings: Immediately after being released, francolins began to disperse. This dispersal extended about two miles from each release point. Francolins were reportedly observed quite frequently in the area throughout the fall months, but fewer observations were made in the winter.

Two band returns were received from quail hunters who mistakenly shot francolins while quail hunting. Three other francolins were killed on roads by automobiles. It is felt that quite a few more birds were probably killed by quail hunters and automobiles but not reported.

This writer observed a calling male francolin about two miles from one release point in June, 1968, however, no nests or broods were reported within the area.

A twenty mile (20 stop) call count route was set up and run on May 7, 1968. No francolins were heard calling on this route.

It appeared that released francolins survived well and dispersed from release points immediately after releases were made and for a period of about three months thereafter. Fewer observations were made throughout the winter and spring. Additional releases are needed before any speculation on the final outcome can be made on this area.

Recommendations: Continue releases for two more years and make a final evaluation of this release.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Study Leader

JOB PROGRESS REPORT

State: Louisiana

Cooperators: Raymond J. Palermo, Study Leader: Larry Soileau, Project Leader

Project No.: W-29-16 Study Title: Exotic Bird Study

Job No.: X1-6 Job Title: Black Francolin - Trapping & Transplanting

Period Covered: July 1, 1968 through June 30, 1969

Summary: Attempts were made to trap black francolins on the Gum Cove, Louisiana area in September, 1968. Problems encountered while attempting this trapping operation were rabbits entering traps and the almost unbearable hordes of deerflies and mosquitoes. As a result of these problems only six birds were trapped. These were released in similar habitat east of Calcasieu Lake. A number of francolin observations have been made in the release area.

Background: The existing black francolin population at Gum Cove is apparently stable and at carrying capacity. No harvest of these birds is allowed and in view of the fact that additional wild trapped birds can not be obtained, plans were to trap a suitable number of francolins and release them in similar habitat in southwest Louisiana. This job will possibly give us an indication as to the number of wild trapped birds necessary for successful establishment. Followup studies are necessary to make a proper evaluation of this release.

Objective: To trap at least fifty black francolins from the Gum Cove release area and release these birds in similar habitat east of Calcasieu Lake, Cameron Parish, Louisiana.

Procedures: In September, 1968, approximately forty suitable trapsites were selected and prepared for baiting. This consisted of removing the ground cover with a garden hoe and cutting excessive overstory vegetation with a machete. A double handful of scratch grain was placed in the prepared site three times weekly for two weeks. Funnel traps were distributed to the bait sites where black francolin sign had been noted. Traps were set at these trapsites during the week of September 19-26, 1968. Trapped francolins were banded, placed in heavy cardboard poultry crates, transported and released in similar habitat about twenty miles east of the Gum Cove area.

Findings: Many problems were encountered in attempting to trap black francolin. One of these was the persistence of rabbits getting into traps thereby rendering them useless. Another was the deerflies and mosquitoes which made trapping almost unbearable. Traps were set two days and six francolins were captured. The six-age ratio was as follows:

Adult Male -2 : Immature Male - 1
Adult Female -1: Immature Female -2

Red aluminum leg bands were put on these six birds and they were transported and released on the Grand Lake Ridge east of Calcasieu Lake, Louisiana.

A number of francolin observations have been made in the release area; however, it is not known whether they are the same birds that were released. The reason for this is the fact that a substantial number of pen-reared black francolins were released approximately ten miles north.

Recommendations: Continue the francolin trapping program at Gum Cove but concentrate on late winter trapping when conditions are more favorable. Early spring releases will also enhance the chances of less dispersal of released birds.

Prepared by: Raymond J. Palermo
Raymond J. Palermo
Study Leader

Approved by: Lawrence D. Soileau
Lawrence D. Soileau
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Director

STATE: Louisiana

PROJECT: FW-2-10

PERIOD: July 1, 1968 - June 30, 1969

ANNUAL PROGRESS REPORT

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Job No. 5: Analysis and Reports

State of Louisiana

Project No: FW-2-10 Name: Research Design, Machine Compilation and Analysis of Data

Job No: 1 Title: Data Processing

Period Covered: July 1, 1968 through June 30, 1969

Abstract: Data processing was carried out for all programs presented in this report during the segment period.

Recommendations:

1. Consideration is being given to conversion from 90 column to 80 column punch cards for the purpose of up-dating the system. All new Univac equipment has been standardized to 80 column only.
2. It is recommended that this Job be continued in its present form for the following year.

Objectives:

1. To handle necessary administrative functions of processing systems.
2. To perform necessary auditing and coding of field forms preparatory to machine functions.
3. To machine process data as required and/or requested according to prescribed methods.
4. To perform necessary clerical editing of printed machine results.

Techniques Used: Each program and program job require specific procedures dictated by objectives of the work. Basically, the order of procedures follows a sequence pattern:

1. Auditing, coding and arranging source data
2. Machine card processing

    a. Card punching by one operator

    b. Verify punching by another operator

    c. Machine verification and correction of errors.

3. Machine procedures. Includes all basic card sequencing, computations and tabulations and any specific machine processing as required and/or requested.

4. Data editing and summaries. Includes checking sequence and correctness of machine runs and preparing necessary report formats.

Findings: Data processing work was performed on the following programs: The time analysis for each function within these programs is presented at the end of Job 1.

1. Banding

   Project FW-2 responsibility in this program consists of coordination of the Commission banding program with the U. S. Fish and Wildlife Service and with sub-permit holders within the Commission; administration of the program; recording all banding data by the Commission and recording all recovery data concerning Louisiana as supplied by the Bureau of Sport Fisheries and Wildlife; and preparation of reports of these activities as required. (See Job 5 for banding reports.)

2. Deer Kill Survey

   The yearly deer kill survey (for the 1968-69 hunting season) was carried out during the segment. This survey has been conducted on a parish basis for four consecutive years which furnished us with comparative results for management purposes.

Data processing responsibilities for this mail survey consisted of the following phases:

a. License file handling. Duplicate copies of big game licenses and permits were forwarded to the Project and these were recorded and pre-determined numbers pulled for sampling.

b. A master locator punch card was prepared bearing descriptive indentification numbers and the hunter's name and address.

c. Survey mailings. Continuous form questionnaires were prepared by computer from the master cards and mailed in window envelopes for each of three mailings with responses being purged from subsequent mailings.

d. Questionnaire responses. Responses were audited, coded and machine cards prepared for each response, non-deliverable and non-response entry.

e. Summarization of results. At the end of the survey, summary cards for each of the items were punched for obtaining estimates. License and permit results were summarized separately.

f. Estimates. Completed estimates were prepared by computer using an up-dated program for mail survey estimators.

Design and analysis characteristics and estimates from the survey are presented under Job 3 of this report.

3. Dove Harvest Survey

This program is coordinated through Project FW-2 and jointly funded by Project W-29 and with supervision by the Dove Study Leader. Responsibilities in data processing for Project FW-2 include:

a. Preparation of the sample. Samples from basic resident hunting licenses were selected from the file and punched into master locator cards with identification number, name and address.

b. Survey mailings. Continuous form questionnaires were prepared by computer from the master cards and mailed in window envelopes for each of three mailings with responses being purged from subsequent mailings.

c. Questionnaire responses. Responses were audited, coded and machine cards were punched for each response, non-deliverable and non-response entry.

d. Summarization of results. At the end of the survey, response information for each of the items was summarized for obtaining estimates for each of the three segments of the dove season.

e. Names and addresses of dove hunters obtained from this survey were furnished to the dove study leader to be used in conjunction with a regional dove telephone survey for the 1969-70 season.

4. Waterfowl Survey

This program was carried out for the 1968-69 season and was conducted in the same manner as the above described

dove harvest survey using the basic resident hunting license issue for the frame. This survey included ducks, geese and coot kill results on a state wide basis. Species Kill estimates were also prepared for ducks. (1968-69 Waterfowl Survey results are presented in Job. No. 5)

5. Fish Population Sampling

   Sampling data using various fishing gear were processed for Louisiana Project F-8. Programming and runs for trammel net samples, which was the major gear used for this project, were completed for all data collected over an eight year period. A total of 198 computer runs were made consisting of twenty two runs for each segment and consolidated runs for the entire period covered. During the eight year period a total of 48,467 specimens of various species were collected by the use of trammel nets. These were recorded along with the prevailing water chemistry and water conditions. Data processing will be continued for this project during the next segment for trawl, cast net, bobbinet and stomach content samples which were collected during this eight year period. The project leader for F-8 is presently preparing a report on the findings of this project.

6. Other programs

   Work on other programs which were primarily of a service nature included Water Quality Analysis and a dove recovery

study from 1949 to 1968. These programs are presently in progress. Computer runs are prepared as required.

Creel Census which was discontinued during the 1968-69 segment will be continued beginning July 1, 1969.

Prepared by: Roger Hunter, Jr.

Time analysis (expressed in man days) for programs during FY 1968-69

	Program	Total Time (Man Days)
1.	Banding	155
2.	Deer Kill Survey	618
3.	Dove Harvest Survey	161
4.	Waterfowl Survey	229
5.	Fish Population Sampling	209
6.	Water Quality Analysis	23
7.	Dove Recovery Study	38
8.	Other Programs (Planning)	10
	TOTAL	1,443

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es not include computer programming or computer running time at her locations.

State of Louisiana

Project No.: FW-2-10 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 2 Title: Designs and Procedures for Processing Data

Period Covered July 1, 1968 through June 30, 1969

Abstract: Univac computer programming was accomplished as required during the segment. All programs will be up-dated accordingly as needed through the next segment. Additional equipment is planned for the next segment to facilitate the increased volume of data processing and mail surveys.

Recommendations: 1. It is recommended that this Job be continued for the next segment.

Objectives:

1. To determine the feasibility of using machine processing of data for studies as requested.
2. To determine a suitable processing system, if feasible to include:
    a. Field collection forms
    b. Punch card design
    c. Wiring unit design
    d. Computer program
    e. Flow arrangement for processing
    f. Instructions of processing
3. To continue development on any previously planned processing system that requires revisions or additions.

Techniques Used: 1. For Feasibility Studies

Planning for programs necessitates detailed studies of objectives, data collection activities and analysis desired. Each program requires its own techniques although there are generally

certain routines acceptable to all program design. The amount of work involved depends upon the complexity of each phase of the program and the continuancy of the program. If a program is considered feasible, the detail programming to include data collection forms, punch card formats and basic processing procedures are developed.

2. For Phase Instructions

Any continuing program requires specific processing instructions for each job or phase; this includes written programs for computer output. Program up-dating also falls into this category. Each set of instructions is given a Job number and a file is maintained for each program. Program folders are prepared for each job and are maintained for continuing programs.

Findings: Work under this Job was carried out for every program during the report period. Primary considerations were given to developing new computer programs for more comprehensive and faster results and to streamlining clerical procedures.

Prepared by: Roger Hunter, Jr.

State of Louisiana

Project No.: FW-2-10 Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 3 Title: Study Designs and Sampling Programs

Period Covered: July 1, 1968 through June 30, 1969

Abstract: Planning and operation were carried out for the Deer Kill, Dove Harvest and Waterfowl Surveys during the segment.

Recommendations: It is recommended that this Job be continued for the next segment.

Objectives:

1. To aid project and study leaders, at their request, in study designs.
2. To develop, coordinate, and supervise survey and sampling programs as requested.

Techniques Used: Under this section designs and estimators will be discussed for each program:

1. Deer Kill Survey

General. A mail survey was used to estimate deer kill information during the 1968-69 hunting season. Sampling procedure was identical to that used for the previous season to produce estimates of results on state, district and parish levels for management purposes. Procedure and results of the 1968-69 Deer Kill Survey are included in Job No. 5 of this report.

Design and Estimators. The general design and estimators for the 1968-69 deer kill survey were similar to the previous season. Parish sampling fractions ran from 5% to 100%. Item of interest totals were calculated on a parish breakdown and these were combined for district and state estimates. The computer program

set up for the 1965-66 survey was used to calculate item estimates (T) for each parish and punched card outputs were combined to summarize for district and state totals. Slight modification was required for this program to add several new items of interest.

2. Dove Harvest Survey

   A mail survey was used to determine dove harvest information during the 1968-69 season. This survey was conducted primarily to obtain names and addresses for wing collection packets to be used in conjunction with a regional dove telephone survey and to check the Louisiana results obtained from the regional survey. A sample was selected from the 1967-68 Louisiana basic resident hunting license issue to obtain state-wide estimates for each of the three segments of the 1968-69 dove hunting season.

3. Waterfowl Survey

   A mail survey was used to determine the duck, geese and coot kill information during the 1968-69 season. The procedure was identical to that used for the Dove Harvest Survey.

Findings:

1. Deer Kill Survey

   The 1968-69 Deer Kill Survey report is attached.

2. Dove Harvest Survey

   Estimates for the 1968-69 Dove Harvest Survey are attached.

3. Waterfowl Survey

   The 1968-69 Waterfowl Survey report is attached.

Prepared by: Roger Hunter, Jr.

State of Louisiana

Project No.: FW-2-10

Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 4

Title: Southeastern Cooperative Fish and Game Statistics Project

Period Covered: July 1, 1968 through June 30, 1969

Abstract: Project FW-2 Project Leader served as Louisiana's representative to the Cooperative Project and presented statistical problems to the Cooperative Project.

Recommendations: It is recommended that Louisiana continues to participate in the Cooperative Statistics Project.

Objectives:

1. To coordinate with, assist and/or advise project and study leaders of fish and game research work applicable for presentation to the Institute of Statistics under the consulting phase of the project.
2. To present material to the Cooperative Project for design and/or analysis.
3. To cooperate with the Statistical Project in field testing of theoretical research results.
4. To represent Louisiana in the policy and work plan of the Cooperative Study.

Techniques Used: Through correspondence, visitations and telephone communications, problems in the area of program design and analysis were presented to the professional statistician for solution solving and recommendations. The Project was especially valuable in the area of survey design and estimator development. Aid was solicited under the following programs:

1. Deer Kill Survey
2. Dove Harvest Survey
3. Waterfowl Survey

Prepared by Roger Hunter, Jr.

State of Louisiana

Project No.: Fw-2-10

Name: Research Design, Machine Compilation and Analysis of Data

Job No.: 5

Title: Analyses and Reports

Period Covered: July 1, 1968 through June 30, 1969

Abstract:

Annual report information was prepared for various projects. The required Federal Aid Annual Report was prepared. Numerous interim reports of estimates and decisions were prepared. Bird Banding, Deer Kill, Dove and Waterfowl Kill reports are attached.

Recommendations: It is recommended that the Job be continued.

Objectives:

1. To aid in or perform necessary analyses of specified data.
2. To report on processed data within the responsibility of the project.

Techniques Used and Findings:

Program files are edited and placed into logical sequences, report outlines are prepared, draft copies worked and corrected for final reports.

Prepared by: Roger Hunter, Jr.

Record of Birds Banded and Retrapped by Species and Banding Location during FY 68-69

Species	Banding Location	Banded	Retrapped
E. Brown Pelican	Rockefeller Refuge - Cameron Parish	47	
	TOTAL E. BROWN PELICAN	47	
Mallard	Rockefeller Refuge - Cameron Parish	74	2
	TOTAL MALLARD	74	2
Mottled Duck	Rockefeller Refuge - Cameron Parish	232	
	TOTAL MOTTLED DUCK	232	
Green-winged Teal	Rockefeller Refuge - Cameron Parish	1	
	TOTAL GREEN-WINGED TEAL	1	
Blue-winged Teal	Rockefeller Refuge - Cameron Parish	95	2
	Nebo - LaSalle Parish	246	17
	TOTAL BLUE-WINGED TEAL	341	19
Shoveler	Rockefeller Refuge - Cameron Parish	21	
	TOTAL SHOVELER	21	
Pintail	Rockefeller Refuge - Cameron Parish	50	3
	Nebo - LaSalle Parish	99	2
	TOTAL PINTAIL	149	5
Wood Duck	Farmerville - Union Parish	62	24
	Coulee GMA - Morehouse Parish	1	
	Rockefeller Refuge - Cameron Parish	37	
	Olive Branch - E. Feliciana	13	
	Rilla - Ouachita Parish	3	
	West Monroe - Ouachita Parish	141	71
	Washington - St. Landry Parish	451	9
	TOTAL WOOD DUCK	708	104
Hybrid Ducks	Rockefeller Refuge - Cameron Parish	13	
	HYBRID DUCK'S	13	
Lesser Snow Goose	Rockefeller Refuge - Cameron Parish	2	
	TOTAL LESSER SNOW GOOSE	2	

Record of Birds Banded and Retrapped by Species and Banding Location during FY 68-69 (cont'd.)

Species	Banding Location	Banded	Retrapped
Blue Goose	Rockefeller Refuge - Cameron Parish	3	
	TOTAL BLUE GOOSE	3	
Canada Goose	Rockefeller Refuge - Cameron Parish	209	
	TOTAL CANADA GOOSE	209	
Hutchin's Goose	Rockefeller Refuge - Cameron Parish	3	
	TOTAL HUTCHIN'S GOOSE	3	
Fulvous Tree Duck	Rockefeller Refuge - Cameron Parish	37	
	TOTAL FULVOUS TREE DUCK	37	
American Coot	Rockefeller Refuge - Cameron Parish	11	
	TOTAL AMERICAN COOT	11	
Mourning Dove	Belle Chasse - Plaquemines Parish	39	3
	Darnell - W. Carroll Parish	20	
	Baton Rouge - E. Baton Rouge Parish	169	38
	Rockefeller Refuge - Cameron Parish	9	1
	Fairbanks - Ouachita Parish	437	49
	Bodcau WMA - Bossier Parish	188	36
	Camp Claiborne - Rapides Parish	57	26
	DeRidder - Beauregard Parish	134	35
	Gilbert - Franklin Parish	78	3
	Newellton - Tensas Parish	768	49
	Ruston - Lincoln Parish	111	19
	New Iberia - Iberia Parish	547	203
	Monroe - Ouachita Parish	186	67
	Wisner - Franklin Parish	1523	61
	Shaw - Concordia Parish	173	25
	Rosepine - Vernon Parish	19	
	Natchitoches - Natchitoches Parish	9	
	TOTAL MOURNING DOVE	4467	615
White-winged Dove	Rockefeller Refuge - Cameron Parish	1	
	TOTAL WHITE-WINGED DOVE	1	
	TOTAL ALL SPECIES	6319	745

Summary of Recoveries Received during FY 68-69 of Birds Banded by Louisiana Wild Life and Fisheries Commission

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
Mallard	Ferriday - Concordia Parish	Arkansas	1
	Coulee G.M.A. - Morehouse Parish	Illinois	1
	"	Indiana	1
	"	Kansas	1
	"	Louisiana	2
	"	Saskatchewan	1
	"	S. Dakota	1
	"	Tennessee	1
	Rockefeller Refuge - Cameron Parish	Louisiana	5
	Nebo - LaSalle Parish	Kentucky	1
	"	Louisiana	3
	"	Manitoba	1
	"	Minnesota	1
	"	Nebraska	1
	"	N. Dakota	1
	Millhaven - Ouachita Parish	Arkansas	1
	"	Louisiana	2
	"	Nebraska	1
		TOTAL MALLARD	26
Black Duck	Nebo - LaSalle Parish	Louisiana	1
		TOTAL BLACK DUCK	1
Mottled Duck	Rockefeller Refuge - Cameron Parish	Louisiana	17
		TOTAL MOTTLED DUCK	17
Blue-winged Teal	Black Lake - Natchitoches Parish	Colorado	1
	"	Louisiana	3
	Rockefeller Refuge - Cameron Parish	Alabama	1
	"	Colombia	3
	"	Colorado	1
	"	Louisiana	6
	"	Texas	1
	"	Venezula	1
	Catahoula Lake - Rapides Parish	Mexico	1
	Nebo - LaSalle Parish	Alaska	1
	"	Colombia	7
	"	Florida	3
	"	Iowa	1
	"	Jamica	1
	"	Kansas	1
	"	Louisiana	42
	"	Manitoba	1
	"	Mexico	4
	"	Minnesota	1

Summary of Recoveries Received during FY 68-69 of Birds Banded by Louisiana Wild Life and Fisheries Commission (cont'd.)

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
Blue-winged Teal (cont'd.)	Nebo - LaSalle Parish (cont'd.)	New York	1
	"	N. Dakota	1
	"	Ontario	1
	"	Saskatchewan	1
	"	S. Carolina	1
	"	S. Dakota	1
	"	Texas	2
	"	Venezuela	2
		TOTAL BLUE-WINGED TEAL	90
Shoveler	Rockefeller Refuge - Cameron Parish	Louisiana	1
		TOTAL SHOVELER	1
Pintail	Rockefeller Refuge - Cameron Parish	Louisiana	6
	"	Mexico	1
	"	S. Dakota	1
	Nebo - LaSalle Parish	Arkansas	1
	"	Illinois	1
	"	Iowa	1
	"	Kansas	1
	"	Louisiana	25
	"	Manitoba	1
	"	Nebraska	1
	"	Texas	6
		TOTAL PINTAIL	45
Wood Duck	New Light - Tensas Parish	Mississippi	1
	Ferriday - Concordia Parish	Minnesota	1
	Bundick Lake - Beauregard Parish	Louisiana	14
	"	Minnesota	1
	"	S. Carolina	1
	Farmerville - Union Parish	Arkansas	1
	"	Louisiana	3
	"	Texas	1
	Rockefeller Refuge - Cameron Parish	Minnesota	1
	Anacoco Lake - Vernon Parish	Iowa	2
	"	Louisiana	8
	"	Minnesota	1
	Nebo - LaSalle Parish	Louisiana	1
	Kepler Lake - Bienville Parish	Louisiana	1
	"	Texas	1
	Millhaven - Ouachita Parish	Louisiana	1
	West Monroe - Ouachita Parish	Louisiana	2
	"	Texas	1
	Washington - St. Landry Parish	Alabama	1

Summary of Recoveries Received during FY 68-69 of Birds
Banded by Louisiana Wild Life and Fisheries Commission (cont'd.)

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
Wood Duck (cont'd.)	Washington - St.Landry Parish (cont.)	Iowa	1
	"	Louisiana	5
	"	Michigan	1
	"	Minnesota	2
	"	Mississippi	1
	"	Missouri	1
	"	S. Dakota	1
	"	Wisconsin	3
		TOTAL WOOD DUCK	58
Lesser Scaup	Rockefeller Refuge - Cameron Parish	California	1
	"	Illinois	1
	"	Iowa	1
	"	Kansas	2
	"	Louisiana	35
	"	Manitoba	1
	"	Mexico	1
	"	Minnesota	9
	"	Mississippi	1
	"	Missouri	2
	"	Nebraska	2
	"	Ohio	1
	"	Saskatchewan	3
	"	S. Carolina	1
	"	S. Dakota	1
	"	Texas	5
	"	Utah	1
	"	Virginia	1
	"	Wisconsin	3
		TOTAL LESSER SCAUP	72
Ring-necked Duck	Rockefellow Refuge - Cameron Parish	Louisiana	1
	Catahoula Lake - Rapides Parish	Mississippi	1
	Nebo - LaSalle Parish	Louisiana	1
	"	N. Carolina	1
		TOTAL RING-NECKED DUCK	4
Blue Goose	Rockefeller Refuge - Cameron Parish	Texas	1
		TOTAL BLUE GOOSE	1
Canada Goose	Rockefeller Refuge - Cameron Parish	Iowa	1
	"	Minnesota	1
	"	Missouri	3
		TOTAL CANADA GOOSE	5

Summary of Recoveries Received during FY 68-69 of Birds
Banded by Louisiana Wild Life and Fisheries Commission (cont'd.)

Species	Louisiana Location of Banding	State of Recovery	No. of Recoveries
American Coot	Rockefeller Refuge - Cameron Parish	Louisiana	2
	"	Minnesota	1
		TOTAL AMERICAN COOT	3
American Woodcock	Swayze Lake - St. Landry Parish	Alabama	1
		TOTAL AMERICAN WOODCOCK	1
Mourning Dove	Gilbert - Franklin Parish	Louisiana	2
	Newellton - Tensas Parish	Louisiaia	32
	Homer - Claiborne Parish	Arkansas	1
	"	Louisiana	1
	Fort Polk - Vernon Parish	Louisiana	6
	"	Texas	2
	Rockefeller Refuge Cameron Parish	Louisiana	2
	"	Texas	1
	Fairbanks - Ouachita Parish	Louisiana	23
	"	Texas	1
	Bodcau W.M.A. - Bossier Parish	Louisiana	9
	"	Texas	8
	Camp Claiborne - Rapides Parish	Louisiana	3
	"	Texas	5
	DeRidder - Beauregard Parish	Florida	1
	"	Georgia	1
	"	Guatemala	1
	"	Honduras	1
	"	Louisiana	25
	"	Texas	8
	Bernice - Union Parish	Louisiana	2
	Belle Chasse - Plaquemines Parish	Florida	1
	"	Louisiana	1
	Carencro - Lafayette Parish	Alabama	1
	"	Louisiana	4
	Baton Rouge - E. Baton Rouge Parish	Louisiana	36
	Bellwood - Natchitoches Parish	Unknown	5
	"	Louisiana	8
	New Iberia - Iberia Parish	Florida	5
	"	Louisiana	100
	"	Texas	8
	Tallulah - Madison Parish	Louisiana	7
	Tendal - Madison Parish	Louisiana	42
	"	Texas	1
	Monroe - Ouachita Parish	Louisiana	19
	"	Mississippi	1
	"	Texas	1

Summary of Recoveries Received during FY 68-69 of Birds
Banded by Louisiana Wild Life and Fisheries Commission (cont'd.)

Species	Louisiana Location of Banding	State of Recovery	No. Of Recoveries
Mourning Dove (cont'd.)	Trout - LaSalle Parish	Mexico	1
	Wisner - Franklin Parish	Arkansas	1
	"	Louisiana	100
	"	Mississippi	2
	"	Texas	1
	Shaw - Concordia Parish	Louisiana	23
	"	Mississippi	1
	Rosepine - Vernon Parish	Louisiana	5
	"	Texas	1
	Marksville - Avoyelles	Louisiana	1
	Sunset - St. Landry Parish	Louisiana	2
		TOTAL MOURNING DOVE	513
		TOTAL ALL SPECIES	837

Summary of recoveries received during FY 68-69 of birds banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission)

Species	State of Recovery	No. of Recoveries
Mallard	Alabama	1
	Alberta	1
	Arkansas	2
	Colorado	1
	Illinois	1
	Iowa	1
	Louisiana	9
	Manitoba	3
	Minnesota	1
	Missouri	2
	Nebraska	1
	Saskatchewan	2
	S. Dakota	1
	TOTAL MALLARD	26
Gadwall	Louisiana	1
	Texas	1
	TOTAL GADWALL	2
American Widgeon	Louisiana	4
	N. Dakota	1
	Saskatchewan	1
	Texas	1
	TOTAL AMERICAN WIDGEON	7
Green-winged Teal	Kansas	1
	Louisiana	2
	Saskatchewan	1
	TOTAL GREEN-WINGED TEAL	4
Blue-winged Teal	Louisiana	2
	Minnesota	1
	Nebraska	1
	TOTAL BLUE-WINGED TEAL	4
Shoveler	Kansas	1
	Louisiana	2
	TOTAL SHOVELER	3

Summary of recoveries received during FY 68-69 of birds banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission) cont'd.

Species	State of Recovery	No. of Recoveries
Pintail	Alberta	1
	California	1
	Kansas	2
	Louisiana	10
	Michigan	1
	Tennessee	1
	Texas	3
	TOTAL PINTAIL	19
Wood Duck	Louisiana	4
	TOTAL WOOD DUCK	4
Unidentified Scaup	Minnesota	1
	TOTAL UNIDENTIFIED SCAUP	1
Lesser Scaup	Alberta	1
	Arkansas	1
	Bahama Islands	1
	Florida	1
	Illinois	1
	Louisiana	11
	Manitoba	1
	Mexico	1
	Minnesota	14
	Missouri	2
	N. Dakota	2
	Ontario	3
	Texas	4
	Wisconsin	3
	TOTAL LESSER SCAUP	46
Ring-necked Duck	Unknown	1
	Arkansas	2
	California	1
	Florida	3
	Iowa	2
	Louisiana	59
	Manitoba	1
	Minnesota	24
	Missouri	4
	New Jersey	1
	Ontario	2
	Quebec	1
	S. Carolina	1
	S. Dakota	1

Summary of recoveries received during Fy 68-69 of birds banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission) cont'd.

Species	State of Recovery	No. of Recoveries
Ring-necked Duck (cont'd.)	Texas	11
	Wisconsin	2
	TOTAL RING-NECKED DUCK	116
Lesser Snow Goose	Franklin	1
	Louisiana	1
	S. Dakota	1
	Texas	1
	LESSER SNOW GOOSE	4
Blue Goose	Franklin	1
	Illinois	1
	Iowa	2
	Louisiana	7
	Missouri	3
	Nebraska	1
	Ontario	12
	Quebec	1
	S. Dakota	4
	Texas	1
	TOTAL BLUE GOOSE	33
Canada Goose	California	2
	Illinois	12
	Iowa	12
	Kansas	1
	Kentucky	1
	Louisiana	6
	Manitoba	17
	Michigan	1
	Minnesota	32
	Missouri	69
	N. Dakota	3
	Ontario	2
	Quebec	1
	S. Dakota	6
	Wisconsin	10
	TOTAL CANADA GOOSE	175
American Coot	Louisiana	2
	Minnesota	1
	S. Dakota	1
	TOTAL AMERICAN COOT	4

Summary of recoveries received during FY 68-69 of birds banded in Louisiana (other than Louisiana Wild Life and Fisheries Commission) cont'd.

Species	State of Recovery	No. of Recoveries
American Woodcock	Alabama	1
	Arkansas	2
	Illinois	1
	Indiana	2
	Louisiana	17
	Maine	1
	Michigan	12
	Minnesota	2
	Mississippi	5
	Missouri	1
	New Hampshire	1
	New York	1
	Ohio	1
	Ontario	4
	Pennsylvania	5
	W. Virginia	1
	Wisconsin	5
	TOTAL AMERICAN WOODCOCK	62
	TOTAL ALL SPECIES	510

Summary of Recoveries received during FY 68-69 of Birds Banded outside Louisiana and Recovered in Louisiana

Species	State of Banding	No. of Recoveries
Mallard	Alabama	3
	Alberta	26
	Arkansas	48
	Colorado	5
	Delaware	1
	Georgia	1
	Idaho	2
	Illinois	37
	Indiana	9
	Iowa	10
	Kansas	19
	Kentucky	10
	Mackenzie	7
	Manitoba	43
	Michigan	15
	Minnesota	71
	Mississippi	14
	Missouri	12
	Montana	28
	Nebraska	8
	New York	5
	N. Dakota	47
	Ohio	18
	Oklahoma	8
	Ontario	7
	Pennsylvania	1
	Quebec	1
	Saskatchewan	100
	S. Carolina	5
	S. Dakota	44
	Tennessee	49
	Texas	6
	Virginia	1
	Wisconsin	30
	TOTAL MALLARD	691
Black Duck	Indiana	1
	Michigan	2
	New York	1
	Ohio	1
	Ontario	3
	Tennessee	2
	Virginia	1
	Wisconsin	1
	TOTAL BLACK DUCK	12

Summary of Recoveries received during FY 68-69 of Birds Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Mottled Duck	Texas	13
	TOTAL MOTTLED DUCK	13
Gadwall	Alberta	9
	Manitoba	2
	Nebraska	4
	N. Dakota	20
	S. Dakota	8
	TOTAL GADWALL	43
American Widgeon	Alabama	1
	Alaska	1
	Alberta	1
	Arkansas	9
	California	1
	Mackenzie	1
	Manitoba	1
	Minnesota	1
	Mississippi	1
	Montana	1
	Nebraska	1
	N. Dakota	2
	Oklahoma	3
	Ontario	1
	Saskatchewan	4
	Tennessee	4
	Texas	2
	Wisconsin	1
	TOTAL AMERICAN WIDGEON	36
Green-winged Teal	Alberta	6
	Arkansas	1
	Colorado	4
	Iowa	1
	Kansas	7
	Mackenzie	2
	Manitoba	2
	Massachusetts	1
	Michigan	5
	Minnesota	1
	Mississippi	3
	Missouri	9
	Nebraska	1
	Nevada	1
	New Brunswick	3

Summary of Recoveries received during FY 68-69 of Birds
Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Green-winged Teal (cont'd)	New Jersey	3
	New Mexico	1
	New York	5
	N. Carolina	1
	N. Dakota	8
	Ohio	3
	Ontario	6
	Quebec	3
	Saskatchewan	27
	S. Dakota	13
	Tennessee	4
	Texas	5
	Wisconsin	2
	Keewatin	2
	TOTAL GREEN-WINGED TEAL	130
Blue-winged Teal	Alberta	7
	Arkansas	5
	British Columbia	1
	Colorado	1
	Florida	1
	Georgia	1
	Illinois	1
	Iowa	38
	Kansas	2
	Mackinzie	1
	Manitoba	46
	Michigan	5
	Minnesota	14
	Mississippi	3
	Missouri	12
	Montana	2
	Nebraska	6
	New Jersey	1
	New Mexico	1
	New York	3
	N. Dakota	36
	Nova Scotia	1
	Ohio	7
	Oklahoma	2
	Ontario	8
	Saskatchewan	98
	S. Carolina	1
	S. Dakota	31
	Tennessee	6
	Texas	7
	Wisconsin	8
	TOTAL BLUE-WINGED TEAL	356

Summary of Recoveries received during FY 68-69 of Birds
Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Unidentified Teal	Colorado	1
	TOTAL UNIDENTIFIED TEAL	1
Shoveler	Manitoba	1
	Minnesota	3
	N. Dakota	13
	Saskatchewan	1
	S. Dakota	5
	Wisconsin	1
	TOTAL SHOVELER	24
Pintail	Alaska	1
	Alberta	45
	British Columbia	1
	California	4
	Colorado	8
	Idaho	2
	Indiana	3
	Iowa	2
	Kansas	15
	Mackenzie	11
	Manitoba	37
	Michigan	1
	Minnesota	6
	Mississippi	2
	Missouri	2
	Montana	19
	Nebraska	1
	Nevada	4
	New Jersey	2
	New Mexico	2
	New York	2
	N. Dakota	13
	Ohio	2
	Oklahoma	1
	Ontario	9
	Oregon	2
	Saskatchewan	87
	S. Carolina	2
	S. Dakota	7
	Tennessee	2
	Texas	9
	Utah	6
	Washington	1
	Wisconsin	1
	TOTAL PINTAIL	312

Summary of Recoveries received during FY 68-69 of Birds
Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Wood Duck	Alabama	19
	Arkansas	15
	Florida	2
	Illinois	56
	Indiana	27
	Iowa	50
	Kentucky	6
	Maryland	2
	Massachusetts	1
	Michigan	13
	Minnesota	58
	Mississippi	7
	Missouri	30
	New York	6
	N. Carolina	1
	Ohio	22
	Ontario	4
	Tennessee	77
	Vermont	3
	Wisconsin	51
	TOTAL WOOD DUCK	450
Redhead	Iowa	1
	Manitoba	1
	New York	1
	N. Dakota	1
	Saskatchewan	2
	Utah	1
	TOTAL REDHEAD	7
Canvasback	Alabama	1
	Indiana	1
	Maryland	1
	New York	1
	Saskatchewan	1
	Texas	1
	TOTAL CANVASBACK	6
Unidentified Scaup	Alaska	1
	TOTAL UNIDENTIFIED SCAUP	1
Lesser Scaup	Alabama	1
	Alaska	12
	Alberta	14

Summary of Recoveries received during FY 68-69 of Birds Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Lesser Scaup (cont'd.)	Florida	3
	Georgia	1
	Indiana	2
	Mackenzie	10
	Maryland	1
	Minnesota	1
	N. Carolina	2
	TOTAL LESSER SCAUP	47
Ring-necked Duck	Alabama	8
	Alberta	1
	Arkansas	1
	Florida	4
	Georgia	1
	Kentucky	1
	Michigan	1
	Minnesota	7
	Mississippi	20
	Saskatchewan	1
	Tennessee	1
	Texas	1
	Wisconsin	1
	TOTAL RING-NECKED DUCK	48
Bufflehead	Alberta	1
	TOTAL BUFFLEHEAD	1
Lesser Snow Goose	Florida	1
	Franklin	6
	Iowa	4
	Missouri	13
	S. Dakota	10
	Wisconsin	1
	Keewatin	47
	TOTAL LESSER SNOW GOOSE	82
Blue Goose	Alabama	1
	Franklin	56
	Iowa	2
	Missouri	13
	N. Dakota	7
	S. Carolina	1
	S. Dakota	11
	Keewatin	51
	TOTAL BLUE GOOSE	142

Summary of Recoveries received during FY 68-69 of Birds Banded outside Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
White-fronted Goose	Mackenzie	4
	N. Dakota	4
	Saskatchewan	1
	Keewatin	3
	TOTAL WHITE-FRONTED GOOSE	12
Canada Goose	Arkansas	1
	Manitoba	1
	Missouri	5
	TOTAL CANADA GOOSE	7
Hutchins' Goose	Franklin	1
	TOTAL HUTCHINS' GOOSE	1
Fulvous Tree Duck	Texas	1
	TOTAL FULVOUS TREE DUCK	1
American Coot	Alabama	1
	Manitoba	2
	Minnesota	1
	N. Dakota	3
	Saskatchewan	2
	S. Dakota	1
	Tennessee	3
	TOTAL AMERICAN COOT	13
American Woodcock	Michigan	3
	W. Virginia	1
	TOTAL AMERICAN WOODCOCK	4
Band-tailed Pigeon	Oregon	1
	TOTAL BAND-TAILED PIGEON	1
Mourning Dove	Alabama	10
	Arkansas	1
	Florida	2
	Illinois	16
	Indiana	2
	Iowa	6
	Kentucky	1
	Michigan	5
	Minnesota	5
	Mississippi	34

Summary of Recoveries received during Fy 68-69 of Birds Banded outisde Louisiana and Recovered in Louisiana (cont'd.)

Species	State of Banding	No. of Recoveries
Mourning Dove (cont'd.)	Missouri	8
	New York	2
	N. Carolina	1
	Ohio	5
	Oklahoma	1
	S. Dakota	6
	Tennessee	7
	Texas	5
	Wisconsin	6
	TOTAL MOURNING DOVE	123
White-winged Dove	Mexico	1
	TOTAL WHITE-WINGED DOVE	1
	TOTAL ALL SPECIES	2565

1968-69 DEER KILL SURVEY

Summary of Estimates

Licenses and Permits Combined - All Parishes

		95% Confidence		90% Confidence		80% Confidence	
Item	Estimate	Variation	%	Variation	%	Variation	%
Hunters	139,704	± 1,173	.8	± 980	.7	± 763	.5
Gun Hunters	138,932	1,183	.9	987	.7	769	.6
Bow Hunters	10,709	837	7.8	699	6.5	544	5.1
Gun & Bow Hunters	9,930	835	8.4	697	7.0	543	5.5
Days Hunted	1,210,192	29,977	2.5	25,031	2.1	19,485	1.6
Deer Hunters Killing:							
0 Deer	108,938	2,113	1.9	1,764	1.6	1,373	1.3
1 Deer	19,651	1,211	6.2	1,011	5.1	787	4.0
2 Deer	7,391	676	9.2	565	7.6	440	5.9
3 Deer	3,287	582	17.7	486	14.8	379	11.5
4 Deer	847	254	30.0	212	25.1	165	19.5
5 Deer	808	239	29.6	200	24.7	155	19.2
Deer Tag Holders Who Did Not Hunt	18,419	1,145	6.2	956	5.2	744	4.0
Bucks Killed	42,669	2,435	5.7	2,034	4.8	1,583	3.7
Does Killed	7,748	1,137	14.7	949	12.3	739	9.5
Total Deer Killed	50,031	3,170	6.3	2,647	5.3	2,060	4.1

1968-69 DEER KILL SURVEY
Summary of Estimates

Licenses - All Parishes

		95% Confidence		90% Confidence		80 % Confidence	
Item	Estimate	Variation	%	Variation	%	Variation	%
Hunters	108,742	± 802	.7	± 670	.6	± 521	.5
Gun Hunters	108,065	807	.7	674	.6	525	.5
Bow Hunters	9,567	793	8.3	662	6.9	515	5.4
Gun & Bow Hunters	8,891	794	8.9	663	7.5	516	5.8
Days Hunted	953,187	25,489	2.7	21,283	2.2	16,568	1.7
Deer Hunters Killing:							
0 Deer	83,376	1,825	2.2	1,524	1.8	1,186	1.4
1 Deer	15,626	1,087	7.0	907	5.8	706	4.5
2 Deer	6,177	607	9.8	507	8.2	395	6.4
3 Deer	2,971	569	19.1	475	16.0	370	12.4
4 Deer	803	252	31.3	210	26.2	164	20.4
5 Deer	682	210	30.9	176	25.8	137	20.1
Deer Tag Holders Who Did Not Hunt	10,118	780	7.7	651	6.4	507	5.0
Bucks Killed	35,839	2,277	6.4	1,902	5.3	1,480	4.1
Does Killed	6,435	1,081	16.8	903	14.0	703	10.9
Total Deer Killed	41,956	3,016	7.2	2,518	6.0	1,960	4.7

1968-69 DEER KILL SURVEY
Summary of Estimates

Permits - All Parishes

Item	Estimate	95% Confidence		90% Confidence		80% Confidenc	
		Variation	%	Variation	%	Variation	%
		±		±		±	
Hunters	30,962	856	2.8	715	2.3	557	1.8
Gun Hunters	30,868	864	2.8	721	2.3	562	1.8
Bow Hunters	1,142	269	23.5	224	19.7	175	15.3
Gun & Bow Hunters	1,039	260	25.0	217	20.9	169	16.3
Days Hunted	257,005	15,776	6.1	13,173	5.1	10,254	4.0
Deer Hunters Killing:							
0 Deer	25,562	1,064	4.2	889	3.5	692	2.7
1 Deer	4,025	534	13.3	446	11.1	347	8.7
2 Deer	1,214	298	24.6	249	20.5	194	16.0
3 Deer	316	125	39.7	105	33.1	82	25.8
4 Deer	44	37	83.2	31	69.5	24	54.1
5 Deer	126	113	90.0	95	75.2	74	58.5
Deer Tag Holders Who Did Not Hunt	8,301	838	10.1	670	8.4	545	6.6
Bucks Killed	6,830	863	12.6	721	10.6	561	8.2
Does Killed	1,313	352	26.8	294	22.4	229	17.4
Total Deer Killed	8,075	978	12.1	817	10.1	636	7.9

1968-69 DEER KILL SURVEY

Summary of Estimates

TOTAL KILL WITHIN DISTRICT

Licenses and Permits Combined

District	Kill Estimate	95% Confidence		90% Confidence		80% Confidence	
		Variation	%	Variation	%	Variation	%
District 1	6,810	± 915	13.4	± 764	11.2	± 595	8.7
District 2	9,586	1,445	15.1	1,206	12.6	939	9.8
District 3	5,589	967	17.3	807	14.4	629	11.2
District 4	16,614	1,706	10.3	1,425	8.6	1,108	6.7
District 5	2,156	381	17.7	318	14.8	248	11.5
District 6	4,504	833	18.5	696	15.4	541	12.0
District 7	2,506	597	23.8	498	19.9	388	15.5
District 8	2,423	399	16.5	333	13.7	259	10.7
Unknown	1,575	603	38.3	504	32.0	392	24.9
Total	50,031	3,170	6.3	2,647	5.3	2,060	4.1

Parishes within District

District 1 - Bienville, Bossier, Caddo, Claiborne, DeSoto, Red River, Webster
District 2 - E. Carroll, Jackson, Lincoln, Morehouse, Ouachita, Richland, Union, W. Carroll
District 3 - Grant, Natchitoches, Rapides, Sabine, Vernon, Winn
District 4 - Caldwell, Catahoula, Concordia, Franklin, LaSalle, Madison, Tensas
District 5 - Acadia, Allen, Beauregard, Calcasieu, Cameron, Evangeline, Jeff Davis, Vermilion
District 6 - Avoyelles, Iberville, Lafayette, Pt. Coupee, St. Landry, St. Martin, W. Baton Rouge
District 7 - Ascension, E. Baton Rouge, E. Feliciana, Livingston, St. Helena, St. Tammany, Tangipahoa, Washington, W. Feliciana
District 8 - Assumption, Iberia, Jefferson, LaFourche, Orleans, Plaquemines, St. Bernard, St. Charles, St. James, St. John, St. Mary, Terrebonne

1968-69 DEER KILL SURVEY
Summary of Parish Estimates

Licenses and Permits Combined

		95% Confidence		90% Confidence		80% Confidenc	
arish of Kill	Estimate	Variation ±	%	Variation ±	%	Variation ±	%
01 Acadia	29	43	149.7	36	125.0	28	97.3
02 Allen	797	152	19.0	127	15.9	99	12.4
03 Ascension	78	42	54.4	35	45.4	28	35.3
04 Assumption	517	293	56.7	245	47.4	190	36.9
05 Avoyelles	668	413	61.8	345	51.6	268	40.2
06 Beauregard	409	190	46.5	159	38.8	123	30.2
07 Bienville	2,176	566	26.0	472	21.7	368	16.9
08 Bossier	1,019	159	15.6	133	13.0	103	10.2
09 Caddo	665	385	57.9	321	48.3	250	37.6
10 Calcasieu	94	79	84.3	66	70.4	51	54.8
11 Caldwell	1,792	476	26.6	397	22.2	309	17.3
12 Cameron	134	201	149.7	168	125.0	130	97.3
13 Catahoula	562	185	33.0	154	27.5	120	21.4
14 Claiborne	837	220	26.3	184	22.0	143	17.7
15 Concordia	2,265	1447	63.9	1208	53.3	940	41.5
16 DeSoto	926	466	50.3	389	42.0	303	32.7
17 E. Baton Rouge	152	83	54.7	69	45.7	54	35.6
18 E. Carroll	1,958	450	23.0	376	19.2	293	15.0
19 E. Feliciana	166	138	83.1	115	69.4	83	49.9
20 Evangeline	173	85	48.9	71	40.8	55	31.8
21 Franklin	498	414	83.1	346	69.4	269	54.0
22 Grant	817	331	40.5	276	33.8	215	26.3
23 Iberia	281	87	31.0	73	25.9	57	20.2
24 Iberville	1,318	349	26.5	291	22.1	227	17.2

1968-69 DEER KILL SURVEY
Summary of Parish Estimates
(Cont'd)

Licenses and Permits Combined

		95% Confidence		90% Confidence		80% Confidence	
arish of Kill	Estimate	Variation ±	%	Variation ±	%	Variation ±	%
25 Jackson	820	210	25.6	175	21.4	137	16.7
26 Jefferson	56	49	87.1	41	72.8	32	56.6
27 Jeff. Davis	105	96	91.6	80	76.5	62	59.6
28 Lafayette	0						
29 Lafourche	262	78	30.0	65	25.0	51	19.5
30 LaSalle	679	333	49.1	278	41.0	217	31.9
31 Lincoln	577	220	38.1	184	31.8	143	24.8
32 Livingston	486	211	43.4	176	36.2	137	28.2
33 Madison	4,475	907	20.3	757	16.9	590	13.2
34 Morehouse	2,534	953	37.6	796	31.4	619	24.5
35 Natchitoches	981	322	32.8	269	27.4	209	21.3
36 Orleans	0						
37 Ouachita	778	483	62.1	403	51.8	314	40.4
38 Plaquemines	238	106	44.7	89	37.3	69	29.1
39 Pt. Coupee	1,744	605	34.7	506	29.0	394	22.6
40 Rapides	545	398	73.1	332	61.0	259	47.5
41 Red River	470	179	38.2	150	31.9	117	24.8
42 Richland	507	250	49.4	209	41.2	163	32.1
43 Sabine	727	437	60.1	365	50.2	284	39.1
44 St. Bernard	31	22	70.3	18	58.7	14	45.7
45 St. Charles	145	75	51.9	63	43.3	49	33.7
46 St. Helena	113	65	57.5	54	48.0	42	37.4
47 St. James	206	116	56.2	97	46.9	75	36.5
48 St. John	233	91	39.1	76	32.6	59	25.4

1968-69 DEER KILL SURVEY
Summary of Parish Estimates
(Cont'd)

Licenses and Permits Combined

		95% Confidence		90% Confidence		80% Confiden	
arish of Kill	Estimate	Variation ±	%	Variation ±	%	Variation ±	%
49 St. Landry	362	120	33.1	100	27.6	78	21.5
50 St. Martin	283	105	37.0	88	30.9	68	28.6
51 St. Mary	284	120	42.5	101	35.5	79	27.6
52 St. Tammany	557	424	76.1	354	63.5	275	49.5
53 Tangipahoa	218	179	82.2	150	68.6	116	53.4
54 Tensas	6,343	1,117	17.6	933	14.7	726	11.4
55 Terrebonne	170	55	32.1	46	26.8	35	20.9
56 Union	2,367	764	32.3	638	27.0	497	21.0
57 Vermilion	415	146	35.2	122	29.4	95	22.9
58 Vernon	906	433	47.8	361	39.9	281	31.1
59 Washington	305	122	40.1	102	33.5	79	26.0
60 Webster	717	214	29.8	178	24.9	139	19.4
61 W. Baton Rouge	129	99	77.1	83	64.3	65	50.1
62 W. Carroll	45	58	129.3	49	108.0	38	84.1
63 W. Feliciana	431	230	53.4	192	44.6	150	34.7
64 Winn	1,613	431	26.7	360	22.3	280	17.4
65 Unknown	1,575	603	38.3	504	32.0	392	24.9
Total	50,031	3,170	6.3	2,647	5.3	2,060	4.1

1968-69 DEER KILL SURVEY
Parish Information

Parish	Kill Within Parish	Licenses and Permits Combined					
		Parish of Issue		No. of Hunters	Days Hunted	Days Per Hunter	Efforts Per Kill
		Kill	%Buck				
01 Acadia	29	47	58	399	1,864	4.7	39.7
02 Allen	797	429	87	2,326	16,981	7.3	39.6
03 Ascension	78	242	95	973	7,133	7.3	29.5
04 Assumption	517	208	100	317	3,848	12.1	18.5
05 Avoyelles	668	652	97	1,719	17,700	10.3	27.1
06 Beauregard	409	478	77	2,110	15,025	7.1	31.4
07 Bienville	2,176	776	88	1,937	21,723	11.2	28.0
08 Bossier	1,019	806	91	3,676	31,833	8.7	39.6
09 Caddo	665	2,716	86	9,933	85,962	8.7	31.7
10 Calcasieu	94	880	77	5,182	29,532	5.7	33.6
11 Caldwell	1,792	1,024	80	1,862	18,205	9.8	17.8
12 Cameron	134	53	84	186	714	3.8	13.5
13 Catahoula	562	980	88	1,869	22,190	11.9	22.6
14 Claiborne	837	625	97	1,560	15,291	9.8	24.5
15 Concordia	2,265	1,412	78	3,109	28,684	9.2	20.3
16 DeSoto	926	503	96	1,364	13,022	9.5	25.9
17 E. Baton Rouge	152	2,748	85	8,857	70,625	8.0	25.7
18 E. Carroll	1,958	1,324	77	1,612	16,309	10.1	12.3
19 E. Feliciana	166	95	94	438	2,722	6.2	28.7
20 Evangeline	173	295	87	1,709	10,814	6.3	36.7
21 Franklin	498	2,274	86	3,388	30,047	8.9	13.2
22 Grant	817	521	78	1,980	17,421	8.8	33.4
23 Iberia	281	451	98	554	4,428	8.0	9.8
24 Iberville	1,318	867	97	1,459	16,782	11.5	19.4
25 Jackson	820	1,122	90	2,338	22,551	9.6	20.1

Parish Information
(cont'd)

	Parish	Kill Within Parish	Parish of Issue		No. of Hunters	Days Hunted	Days per Hunter	Efforts Per Kill
			Kill	%Buck				
26	Jefferson	56	375	82	1,422	8,256	5.8	22.0
27	Jeff Davis	105	183	88	713	3,983	5.6	21.8
28	Lafayette	0	275	89	1,363	6,809	5.0	24.8
29	Lafourche	262	269	99	626	5,198	8.3	19.3
30	LaSalle	679	725	98	2,609	21,458	8.2	29.6
31	Lincoln	577	1,029	93	2,534	24,861	9.8	24.2
32	Livingston	486	1,075	85	2,767	27,235	9.8	25.3
33	Madison	4,475	1,546	74	1,588	17,645	11.1	11.4
34	Morehouse	2,534	2,102	79	5,106	45,145	8.8	21.5
35	Natchitoches	981	749	90	2,632	28,213	10.7	37.7
36	Orleans	0	641	80	1,955	12,601	6.4	19.7
37	Ouachita	778	4,580	74	10,898	91,285	8.4	19.9
38	Plaquemines	238	98	90	246	1,432	5.8	14.6
39	Pt. Coupee	1,744	681	74	1,288	16,221	12.6	23.8
40	Rapides	545	2,025	83	7,769	60,580	7.8	29.9
41	Red River	470	278	83	868	8,441	9.7	30.4
42	Richland	507	1,667	74	2,950	25,525	8.7	15.3
43	Sabine	727	569	91	1,969	22,238	11.3	39.1
44	St. Bernard	31	65	86	296	1,774	6.0	27.3
45	St. Charles	145	163	95	377	2,826	7.5	17.3
46	St. Helena	113	48	100	488	3,306	6.8	68.9
47	St. James	206	143	90	298	2,886	9.7	20.2
48	St. John	233	130	96	283	2,267	8.0	17.4
49	St. Landry	362	797	87	3,129	26,864	8.6	33.7
50	St. Martin	283	128	91	388	3,370	8.7	26.3
51	St. Mary	284	403	94	926	6,952	7.5	17.3

Parish Information
(cont'd)

	Parish	Kill Within Parish	Parish of Issue		No. of Hunters	Days Hunted	Days Per Hunter	Efforts Pe Kill
			Kill	%Buck				
52	St. Tammany	557	469	99	1,770	14,099	8.0	30.0
53	Tangipahoa	218	253	89	1,463	11,820	8.1	46.7
54	Tensas	6,343	1,630	80	1,687	18,967	11.2	11.6
55	Terrebonne	170	256	94	572	4,795	8.4	18.7
56	Union	2,367	1,543	95	3,126	30,554	9.8	19.8
57	Vermilion	415	261	96	517	2,482	4.8	9.5
58	Vernon	906	1,033	82	3,793	36,355	9.6	35.2
59	Washington	305	363	93	1,757	13,966	7.9	38.5
60	Webster	717	1,022	92	3,522	32,316	9.2	31.6
61	W. Baton Rouge	129	313	88	668	6,616	9.9	21.1
62	W. Carroll	45	1,201	76	1,983	16,832	8.5	14.0
63	W. Feliciana	431	103	99	388	2,661	6.9	25.8
64	Winn	1,613	1,044	94	2,117	19,952	9.4	19.1
65	Unknown	1,575						
	TOTALS	50,031	50,031	85	139,704	1,210,192	8.7	24.2

1968-69 DEER KILL SURVEY
SAMPLING AND RESPONSES
BIG GAME LICENSES

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respons Rate
01	Acadia	430	55%	237	256	4	252	183	73%
02	Allen	1,848	15%	277	244	11	233	150	64%
03	Ascension	932	30%	280	274	12	262	189	72%
04	Assumption	307	55%	168	165	3	162	113	70%
05	Avoyelles	1,494	20%	299	286	16	270	194	72%
06	Beauregard	1,764	15%	265	243	9	234	155	66%
07	Bienville	1,440	20%	288	280	10	270	185	69%
08	Bossier	3,544	15%	532	526	18	508	392	77%
09	Caddo	8,803	5%	440	438	26	412	298	72%
10	Calcasieu	4,477	10%	448	446	17	429	326	76%
11	Caldwell	1,331	15%	200	204	21	183	105	57%
12	Cameron	200	100%	200	198	9	189	137	72%
13	Catahoula	1,429	20%	286	286	13	273	174	64%
14	Claiborne	1,229	20%	246	233	12	221	150	68%
15	Concordia	2,858	10%	286	283	32	251	156	62%
16	DeSoto	1,124	20%	225	228	12	216	166	77%
17	E. Baton Rouge	8,392	5%	420	416	10	406	319	79%
18	E. Carroll	1,267	20%	253	231	17	214	131	61%
19	E. Feliciana	391	50%	196	194	4	190	136	72%
20	Evangeline	1,402	20%	280	288	9	279	170	61%
21	Franklin	2,474	10%	247	242	22	220	135	61%
22	Grant	1,480	15%	222	222	8	214	147	69%
23	Iberia	564	45%	254	267	9	258	179	69%

Sampling and Responses (cont'd)
Big Game Licenses

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respons Rate
24	Iberville	1,206	25%	302	283	4	279	194	70%
25	Jackson	1,784	15%	268	267	19	248	165	67%
26	Jefferson	1,490	25%	373	374	9	365	272	75%
27	Jeff Davis	651	40%	260	263	6	257	200	78%
28	Lafayette	1,307	30%	392	393	17	376	289	77%
29	Lafourche	647	40%	258	254	12	242	168	69%
30	LaSalle	2,090	15%	314	305	16	289	177	61%
31	Lincoln	2,074	15%	311	303	10	293	224	76%
32	Livingston	2,456	15%	368	365	16	349	199	57%
33	Madison	1,284	20%	257	217	15	202	135	67%
34	Morehouse	4,090	10%	409	379	34	362	211	58%
35	Natchitoches	2,131	15%	320	287	17	270	196	73%
36	Orleans	2,025	20%	405	402	17	385	303	79%
37	Ouachita	9,068	5%	453	453	20	433	302	70%
38	Plaquemines	319	100%	319	313	16	297	224	75%
39	Pt. Coupee	1,003	25%	251	247	10	237	164	69%
40	Rapides	6,681	5%	334	328	13	315	209	66%
41	Red River	701	30%	210	210	9	201	139	69%
42	Richland	2,238	15%	336	332	23	309	208	67%
43	Sabine	1,554	15%	233	228	5	223	139	62%
44	St. Bernard	297	100%	297	297	7	290	214	74%
45	St. Charles	429	50%	214	215	6	209	152	73%
46	St. Helena	388	40%	155	158	6	152	90	59%
47	St. James	293	60%	176	181	7	174	122	70%
48	St. John	310	60%	186	182	7	175	129	74%

Sampling and Responses (cont'd)
Big Game Licenses

	Parish	Licenses Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respons Rate
49	St. Landry	2,751	15%	413	408	13	395	286	72%
50	St. Martin	365	60%	219	216	7	209	124	59%
51	St. Mary	904	30%	271	270	19	251	180	72%
52	St. Tammany	1,551	25%	388	393	24	369	236	64%
53	Tangipahoa	1,380	20%	276	270	7	263	167	63%
54	Tensas	1,157	20%	231	231	11	220	151	69%
55	Terrebonne	570	45%	257	261	5	256	198	77%
56	Union	2,328	10%	233	236	7	229	167	73%
57	Vermilion	538	50%	269	268	11	257	180	70%
58	Vernon	3,099	10%	310	303	24	279	175	63%
59	Washington	1,463	25%	366	375	31	344	232	67%
60	Webster	2,839	10%	284	267	11	256	176	69%
61	W. Baton Rouge	603	45%	271	263	9	254	183	72%
62	W. Carroll	1,705	15%	256	250	23	227	133	59%
63	W. Feliciana	334	55%	184	169	2	167	121	72%
64	Winn	1,553	15%	233	235	18	217	137	63%
	TOTALS	118,836	15.2%	18,411	18,092	847	17,245	11,961	69.4%

Responses to First Mailing	7,871	45.6%
Responses to Second Mailing	2,627	15.2%
Responses to Third Mailing	1,463	8.5%
Total Responses	11,961	69.4%
Non-Responses	5,284	
Effective Sample Size	17,245	

1968-69 DEER KILL SURVEY
SAMPLING AND RESPONSES
BIG GAME PERMITS

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respons Rate
01	Acadia	55	55%	30	18	-	18	11	61%
02	Allen	902	15%	135	129	6	123	81	66%
03	Ascension	177	30%	53	56	4	52	40	77%
04	Assumption	59	55%	32	25	-	25	18	72%
05	Avoyelles	563	20%	113	98	6	92	69	75%
06	Beauregard	755	15%	113	93	3	90	65	72%
07	Bienville	706	20%	141	142	4	138	103	75%
08	Bossier	572	15%	86	88	2	86	74	86%
09	Caddo	1,822	5%	91	93	2	91	75	82%
10	Calcasieu	1,091	10%	109	112	2	110	85	77%
11	Caldwell	807	15%	121	112	12	100	73	73%
12	Cameron	34	100%	34	34	-	34	27	79%
13	Catahoula	671	20%	134	131	10	121	74	61%
14	Claiborne	621	20%	124	119	8	111	85	77%
15	Concordia	721	10%	72	74	7	67	41	61%
16	DeSoto	506	20%	101	112	4	108	80	74%
17	E. Baton Rouge	1,514	5%	76	72	6	66	54	82%
18	E. Carroll	609	20%	122	115	10	105	76	72%
19	E. Feliciana	153	50%	77	73	9	64	46	72%
20	Evangeline	550	20%	110	121	9	112	79	71%
21	Franklin	1,190	10%	119	118	14	104	73	70%
22	Grant	737	15%	111	115	11	104	78	75%
23	Iberia	105	45%	47	46	3	43	32	74%
24	Iberville	422	25%	106	97	3	94	68	72%

Sampling and Responses (cont'd)
Big Game Permits

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respons Rate
25	Jackson	810	15%	122	118	14	104	78	75%
26	Jefferson	192	25%	48	59	2	57	44	77%
27	Jeff Davis	159	40%	64	66	-	66	59	89%
28	Lafayette	209	30%	63	60	1	59	49	83%
29	Lafourche	85	40%	34	30	4	26	21	81%
30	LaSalle	877	15%	132	136	23	113	74	65%
31	Lincoln	733	15%	110	101	9	92	75	82%
32	Livingston	859	15%	129	124	7	117	78	67%
33	Madison	490	20%	98	92	5	87	61	70%
34	Morehouse	1,442	10%	144	119	10	109	80	73%
35	Natchitoches	915	15%	137	131	6	125	100	80%
36	Orleans	341	20%	68	66	2	64	53	83%
37	Ouachita	3,114	5%	156	150	8	142	104	73%
38	Plaquemines	0	100%	0	0	-	0		
39	Pt. Coupee	400	25%	100	87	2	85	69	81%
40	Rapides	2,155	5%	108	99	6	93	72	77%
41	Red River	293	30%	88	90	3	87	68	78%
42	Richland	949	15%	142	131	10	121	87	72%
43	Sabine	742	15%	111	109	1	108	77	71%
44	St. Bernard	33	100%	33	33	1	32	22	69%
45	St. Charles	39	50%	20	19	-	19	17	89%
46	St. Helena	187	40%	75	65	1	64	38	59%
47	St. James	18	60%	11	14	-	14	11	79%
48	St. John	30	60%	18	15	2	13	10	77%
49	St. Landry	768	15%	115	104	1	103	80	79%

Sampling and Responses (cont'd)
Big Game Permits

	Parish	Permits Issued	Sampling Rate	Desired Sample	Mailed Sample	Non-Contactables	Effective Sample	Total Responses	Respon Rate
50	St. Martin	78	60%	47	46	1	45	31	69%
51	St. Mary	186	30%	56	52	2	50	39	78%
52	St. Tammany	519	25%	130	156	12	144	90	63%
53	Tangipahoa	477	20%	95	95	4	91	63	69%
54	Tensas	802	20%	160	161	16	145	88	61%
55	Terrebonne	121	45%	54	57	3	54	40	74%
56	Union	1,087	10%	109	91	3	88	63	72%
57	Vermilion	104	50%	52	53	2	51	36	71%
58	Vernon	1,126	10%	113	115	7	108	77	71%
59	Washington	563	25%	141	139	20	119	87	73%
60	Webster	1,197	10%	120	112	10	102	70	69%
61	W. Baton Rouge	171	45%	77	75	5	70	53	76%
62	W. Carroll	768	15%	115	113	11	102	69	68%
63	W. Feliciana	127	55%	70	73	2	71	59	83%
64	Winn	895	15%	134	126	5	121	94	78%
	TOTALS	39,403	14.4%	5,856	5,675	356	5,319	3,893	73.2%

Responses to First Mailing	2,479	46.6
Responses to Second Mailing	914	17.2
Responses to Third Mailing	500	9.4
Total Response	3,893	73.2
Non-Responses	1,426	
Effective Sample Size	5,319	

DOVE KILL SURVEY - License Holders Only

1968-69 Season

Summary of Estimates - Statewide

ITEM	ESTIMATE	95% Confidence VARIATION ±	95% Confidence VARIATION %	90% Confidence VARIATION ±	90% Confidence VARIATION %	80% Confidence VARIATION ±	80% Confidence VARIATION %
Dove Hunters	70,141	1,966	2.8	1,642	2.3	1,278	1.8
Days Hunted:							
1st Segment (Sept. 1-15)	170,215	5,464	3.2	4,562	2.7	3,551	2.1
2nd Segment (Oct. 19-Nov. 24)	142,993	6,537	4.6	5,458	3.8	4,249	3.0
3rd Segment (Dec. 19-Jan. 5)	82,319	5,823	7.1	4,862	5.9	3,785	4.6
Total Days Hunted	395,527	10,319	2.6	8,616	2.2	6,707	1.7
Doves Killed							
1st Segment (Sept. 1-15)	670,021	41,588	6.2	34,726	5.2	27,032	4.0
2nd Segment (Oct. 19-Nov. 24)	551,478	29,738	5.4	24,831	4.5	19,329	3.5
3rd Segment (Dec. 19-Jan. 5)	319,437	18,428	5.8	15,387	4.8	11,978	3.7
Total Doves Killed	1,540,936	54,346	3.5	45,380	2.9	35,324	2.3
Telephone in Residence	57,171	9,777	17.1	8,164	14.3	6,355	11.1

AVERAGE RESULTS DERIVED FROM ABOVE TABLE

Season Dove Kill per Hunter	22.0
Season Efforts per Hunter	5.6
Dove Kill per Effort:	
1st Segment	3.94
2nd Segment	3.86
3rd Segment	3.88
Season	3.90

1968-69 Season

DOVE KILL SURVEY

Sampling and Responses

Frame Used - 1967-68 issue of Louisiana Basic Resident Hunting Licenses

Total Issue - 311,464

Sampling Rate - 1 2/3% (5 random license numbers from each 300 licenses)

Total Questionnaires mailed	4,838
Non-Contactables	-351
Effective Sample Size	4,487
Responses to First Mailing	1,974 (44.0%)
Responses to Second Mailing	770 (17.2%)
Responses to Third Mailing	397 (8.8%)
Total Responses	3,141 (70.0%)
Non-Responses	1,346
Effective Sample Size	4,487

WATERFOWL KILL SURVEY
(License Holders Only)

1968-69 Season

Summary of Estimates - Statewide

ITEM	ESTIMATE	95% Confidence VARIATION	%	90% Confidence VARIATION	%	80% Confidence VARIATION	%
		±		±		±	
Waterfowl Hunters	75,405	1,460	1.9	1,219	1.6	949	1.3
Days Hunted	567,736	12,136	2.1	10,133	1.8	7,888	1.4
Total Geese Killed	80,451	10,919	13.6	9,117	11.3	7,097	8.8
Total Coots Killed	164,079	10,793	6.6	9,012	5.5	7,015	4.3
Ducks Killed:							
Mallard	202,389	5,174	2.6	4,320	2.1	3,363	1.7
Wood Duck	140,283	15,367	11.0	12,831	9.1	9,989	7.1
Pintail	122,529	4,374	3.6	3,652	3.0	2,843	2.3
Green-Winged Teal	118,543	1,890	1.6	1,578	1.3	1,229	1.0
Blue-Winged Teal	67,868	1,808	2.7	1,509	2.2	1,175	1.7
Widgeon	54,070	2,150	4.0	1,795	3.3	1,397	2.6
Shoveler	50,737	2,766	5.5	2,310	4.6	1,798	3.5
Gadwall	36,970	3,805	10.3	3,177	8.6	2,473	6.7
Scaup	31,893	2,004	6.3	1,673	5.2	1,303	4.1
Mottled Duck	15,012	1,102	7.3	920	6.1	716	4.8
All other Species & Unidentified	22,456	2,079	9.3	1,736	7.7	1,351	6.0
Total Ducks Killed	862,750	18,033	2.1	15,058	1.7	11,721	1.4

AVERAGE SEASON RESULTS DERIVED FROM ABOVE TABLE

Geese Killed per Hunter	1.1
Coots Killed per Hunter	2.2
Ducks Killed per Hunter	11.4
Season Efforts per Hunter	7.5

1968-69 Season

WATERFOWL KILL SURVEY

Sampling and Responses

Frame Used - 1967-68 issue of Louisiana Basic Resident Hunting Licenses

Total Issue - 311,464

Sampling Rate - 3 1/3% (10 random license numbers from each 300 licenses)

Total Questionnaires mailed	9,726	
Non-Contactables	- 689	
Effective Sample Size	9,037	
Responses to First Mailing	3,761	(41.6%)
Responses to Second Mailing	1,656	(18.4%)
Responses to Third Mailing	796	(8.8%)
Total Responses	6,213	(68.8%)
Non-Responses	2,824	
Effective Sample Size	9,037	

1968-69 Season

ESTIMATED WATERFOWL HUNTERS, DUCKS KILLED & DAYS HUNTED BY AREA

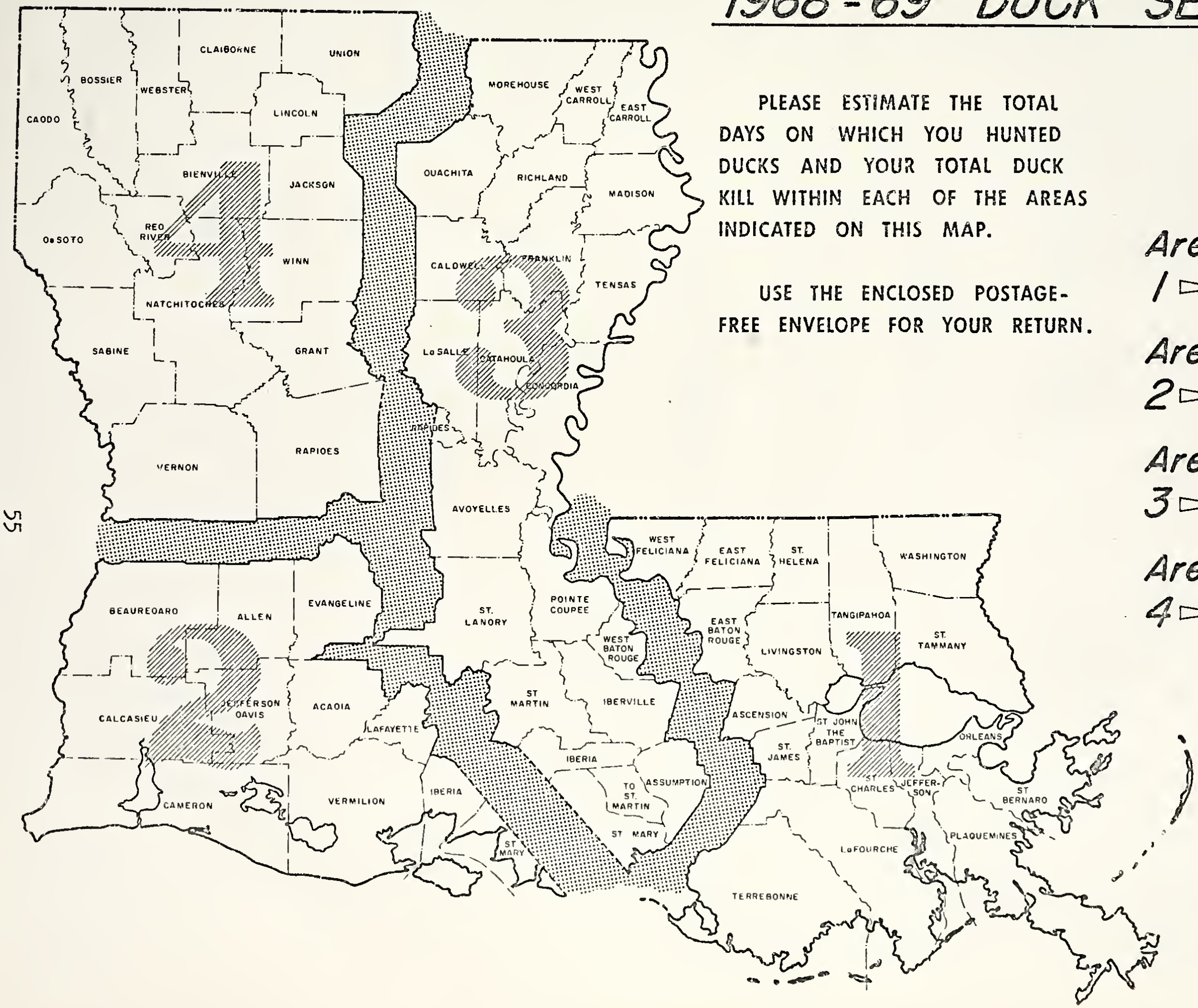
(License Holders Only)

ENSE ISSUE AREA	WATERFOWL HUNTERS	AREA 1		AREA 2		AREA 3		AREA 4		TOTAL-ALL AREAS	
		DUCKS	DAYS	DUCKS	DAYS	DUCKS	DAYS	DUCKS	DAYS	DUCKS	DAYS
1 Respondents (181)	25,411	271,658	149,634	25,437	12,996	26,090	20,793	2,935	2,227	326,120	185,65
2 Respondents (169)	23,753	13,422	5,777	267,293	170,249	4,855	4,514	0	0	285,570	180,54
3 Respondents (105)	14,704	10,388	7,233	39,918	21,921	96,455	81,121	1,632	1,001	148,393	111,27
4 Respondents (82)	11,537	8,829	7,402	18,069	7,763	10,882	12,277	64,887	62,828	102,667	90,27
l Respondents (537)	*75,405	304,297	170,046	350,717	212,929	138,282	118,705	69,454	66,056	*862,750	*567,73

*These are computer estimates taken from the "Waterfowl Kill Survey" and were used to expand the area information received from 537 waterfowl hunters who indicated that they had killed one or more ducks during the season. The expanded results are presented in the above table.

Area map questionnaires (copy attached) were mailed to 1,296 waterfowl hunters who indicated that they had killed one or more ducks during the season. 537 or approximately 42% responded to the single mailing of these questionnaires.

1968-69 DUCK SEASON



PLEASE ESTIMATE THE TOTAL DAYS ON WHICH YOU HUNTED DUCKS AND YOUR TOTAL DUCK KILL WITHIN EACH OF THE AREAS INDICATED ON THIS MAP.

USE THE ENCLOSED POSTAGE-FREE ENVELOPE FOR YOUR RETURN.

	Days Hunted	Ducks Killed
Area 1 ⇨		
Area 2 ⇨		
Area 3 ⇨		
Area 4 ⇨		

s/ Roger Hunter, Jr.

Roger Hunter, Jr., FW-2-R Project Leader

s/ Charles R. Shaw

Charles R. Shaw, P-R Coordinator

s/ Joe L. Herring

Joe L. Herring, Chief, Fish & Game Division

s/ Clark M. Hoffpauer

Clark M. Hoffpauer, Director

BOUND BY
HNM